PURCHASING

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CONTENTS

PURCHASING is an independent journal not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser."

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AN EXCEPTION TO THE RULE

PURCHASING AGENTS are not proud of the recent unsavory publicity concerning unethical purchasing practice and downright dishonesty in high places in the wartime purchasing program. But far from trying to evade the issue, they are among the first to condemn such practices just as they were in the forefront of the campaign to outlaw all forms of commercial bribery.

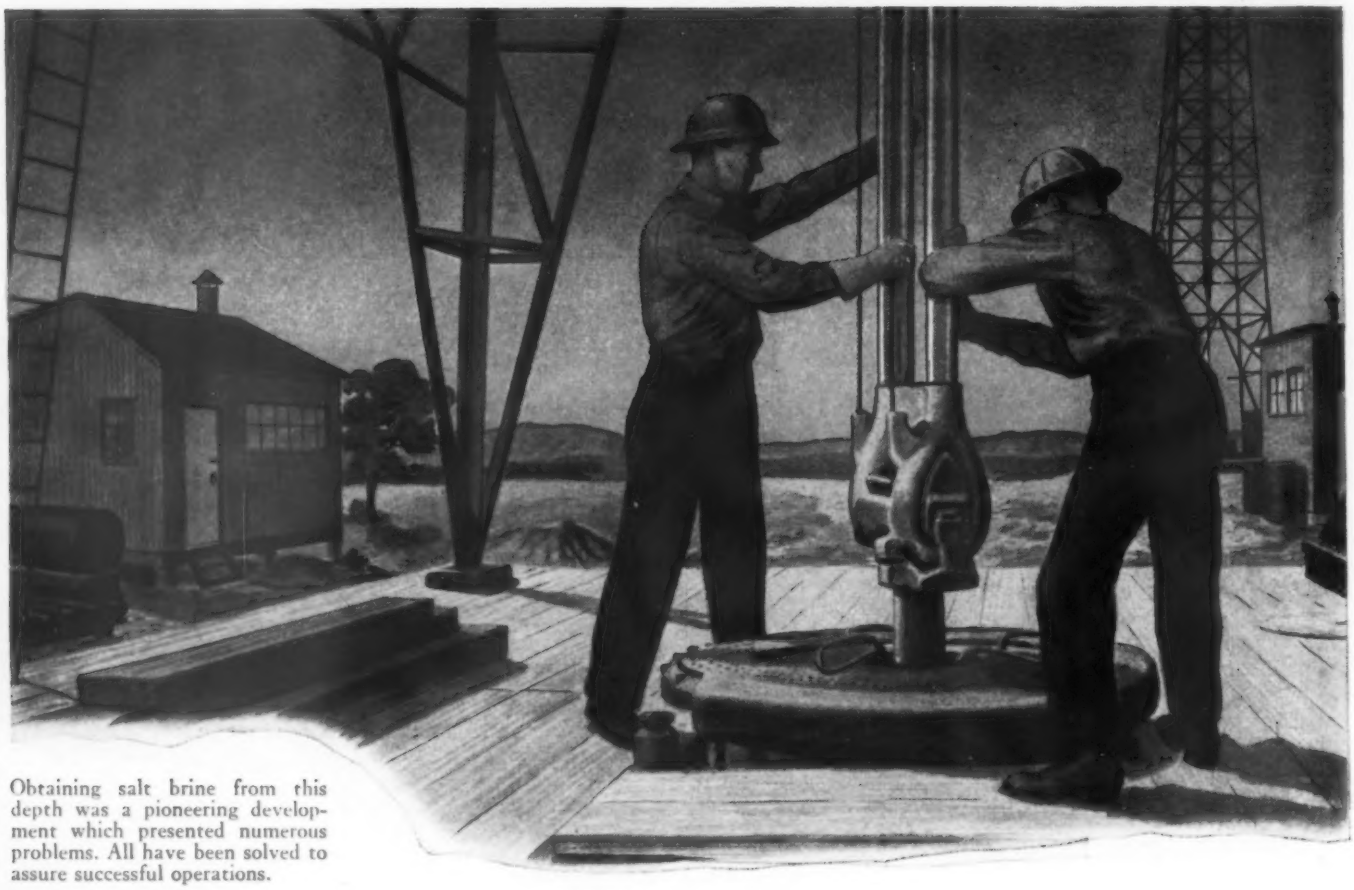
As a matter of fact, there is considerable reason for satisfaction in a situation where one bad example makes such sensational headlines, for that reaction is possible only when a high standard of ethical conduct is taken for granted. It is a real tribute to the integrity of the purchasing field as a whole when the isolated case of one "bad actor" is so newsworthy as to set a whole nation talking about it.

Furthermore, it highlights the essential responsibility of the purchasing function and of all those engaged in it. Incidentally, it is a reminder of the constant temptations inherent in the job of spending other people's money, and an additional tribute to the high type of stewardship which the vast majority of purchasing men bring to their daily work of buying.

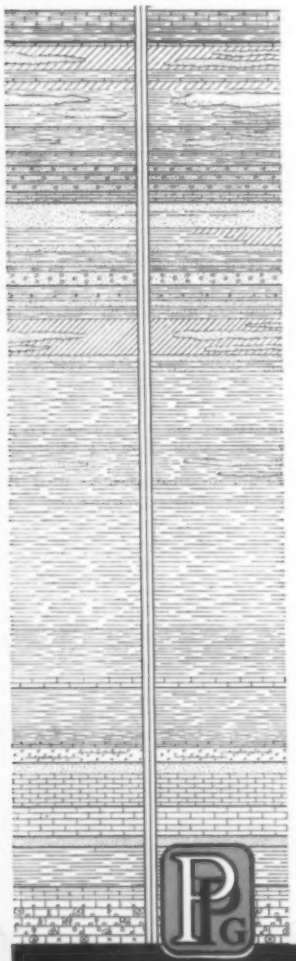
Thirdly, it is a reminder to management that purchasing is not a function to be delegated to the amateur who is likely to let opportunism blind him to the larger aspects of his responsibility. Purchasing is truly professional in that it requires the background of indoctrination in the ethical as well as the technical and procedural phases of the function. On that score, we may dismiss any general implications against the purchasing field, for the "thirty day wonders" of wartime purchasing were never in fact members of the purchasing family.

A bad example is sometimes the best way to prove a point, for it is such exceptions that prove the rule.

Stuart F. Heinritz



Obtaining salt brine from this depth was a pioneering development which presented numerous problems. All have been solved to assure successful operations.



Chlorine and Caustic Soda

from the world's deepest salt wells

The deepest salt bed in commercial use—6,800 feet below the earth's surface—provides the brine used at Columbia's electrolytic chlorine-caustic soda plant at Natrium, West Virginia. Hot water, pumped down to this great stratum, dissolves the rock salt and forces the brine to the surface.

The favorable location of the Natrium plant was established as a result of pre-Pearl Harbor studies by Columbia. Built and operated for the DPC, its post-war purchase by Columbia assured continued operation so helpful in meeting the urgent needs of industry for caustic and chlorine. The caustic soda is purified by a patented Columbia process to meet exacting uses such as required in the manufacture of rayon.

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HIGHLIGHTS

A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers

One of the serious bottlenecks in today's procurement is the transportation problem posed by the **Freight Car Shortage.** In an article that probes beneath the surface of this situation and discloses some of the little-known factors that are responsible for retarding the car building program, E. L. Cady clarifies the problem and points out ways of accelerating relief. There are some practical pointers, too, concerning the things that a purchasing agent can do to improve the present situation. If you are among those who have been troubled by this problem, it will pay you to turn to page 93.

The **Foreign Aid Program,** in whatever final form it may be adopted, is bound to affect markets and other purchasing factors, as well as constituting a major purchasing project on its own account. No one is in a better position to evaluate these basic considerations than are industrial purchasing men. The monthly survey of purchasing opinion, reported on page 97, presents a timely and significant contribution to the thinking on this question of national interest.

Sample rooms are standard practice in selling. When a large purchasing organization adopts this technique to establish a **Sample Room for Suppliers,** to aid vendors in their service and to develop more and better sources of supply, it makes important purchasing news. On page 112, such a project is described and illustrated.

A new editorial feature, starting in this issue and scheduled on a regular monthly basis, summarizes current economic, market and inventory data to provide the purchasing agent with pertinent information to indicate **Where We Stand** in the business cycle. The figures are digested to focus the spotlight on significant conditions and trends, to provide a basis of sound judgment and decision. It is not a forecast in competition with those who are in the business of prediction, but "Straws in the Trade Wind" will suggest directions for your thinking. See the editorial insert on page 107.

There has been a good deal of comment and discussion on the subject of **Centralization** or decentralization in purchasing. For the most part, centralization has been considered as a matter of organization or procedure. In a thoughtful article appearing on page 90, C. J. Harter develops the thought that it goes farther than either of these concepts, being fundamentally an objective of sound management policy and control: On this premise, the details of organization and procedure can be adapted to the particular conditions most intelligently and effectively to achieve the desired ends.

The matter of **Cash Discounts,** analyzed in last month's issue, continues as a subject of controversial interest among purchasing men. A reader, quoted on page 143, characterizes the practice as unsound, contributing to an inflated price structure. He has substantial support in this viewpoint, though the majority opinion is on the other side. A review of pertinent comments on the subject rounds out this discussion.

A factor of increasing importance in the national transportation picture appears in the development of **Inland Waterways** as arteries of industrial traffic. The extent of this trend is reported in the article on page 115, which shows how one of our basic national assets is being adapted to present-day industrial requirements through modernization of equipment and intelligent long-range planning. Purchasing agents over a wide territory will find this story of keen and practical interest in its implications of dependable and economical shipping.

This month's **Guest Editorial** presents the N. A. P. A. Vice President for District No. 3. Paul O'Brien of St. Louis analyzes the business prospects and problems of the new year from the purchasing viewpoint and sees in 1948 another year of opportunity for constructive service. Turn to page 89.

Two important articles in this issue present a comprehensive study of **Purchasing Systems.** The story on page 99, concerning a well conceived and efficiently administered industrial operation, stresses the importance of sound basic policies. On page 136, the exacting requirements of a governmental purchasing department are set forth in terms of the forms and records used to provide essential controls, and to maintain proper accountability for expenditures.

Are you making full use of these monthly departmental features compiled especially to keep you informed on recent industrial developments? A selected list of new **Trade Bulletins and Catalogs** that are yours for the asking (page 14) and the illustrated summary of **New Products & Ideas** now available for the industrial buyer (page 150) will help you to keep up-to-date on these matters.

Manufacturer Flies Ryerson Engineer to Plant . . .

and returns him with problem solved

A machinery manufacturer faced an emergency. He was changing over to flame-cut steel plate for many parts previously cast. In the process of change-over, unforseen production problems threatened to stall his entire operation. Committed to a heavy schedule of deliveries, he saw the threat of reduced volume as an inconvenience to customers—a mark against his company.

Moving swiftly against time, he called Ryerson in a neighboring state, offering to send his company plane if a Ryerson specialist would make a flying trip to his plant. We agreed, and, in a matter of hours, a Ryerson engineer was on the spot giving practical assistance.

By simplifying several parts, engineering difficulties were avoided. Standardization of other parts reduced cost and made better use of available steel. There was no slow-down in production.

As our specialist was flown back that same day, he made out a report covering his activities. It was brief enough. It read: Customer service.

That brief report—customer service—sums up the reason so many steel users make Ryerson the first source for steel from stock and turn to us in time of trouble. Despite steel shortages there is no shortage in our willingness and ability to cooperate. Our technical men will gladly work with you on any steel problem, or assist in the search for a suitable alternate when needed steel is not available.

Remember that Ryerson facilities and experience are always at your service when you call.

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RYERSON STEEL

Another Year of Opportunity

● *By Paul O'Brien*

AS we start 1948, most of us feel that the year ahead is going to be another trying and critical year, not only from the standpoint of purchasing, but for management and all industry as well. It is also a year of opportunity. If we look back to the war years, when our only opportunity was to achieve victory at tremendous cost, conditions look bright today. Or let's look back to the early '30s. Certainly we could not consider any one of those years a year of opportunity, when we were faced with unemployment, business losses, inventory losses, and low prices.

The year 1947 meant a great deal to purchasing, and industrial buyers did a splendid job in helping keep production at a high level regardless of shortages of a number of important commodities.

Management recognizes the importance of sound purchasing today, and has placed procurement right up alongside of sales and production in their importance for sound management and business success.

As purchasing executives, we will have to analyze our problems and do our own thinking. We cannot depend on the hit-and-miss guessing of the forecasters who have been predicting what will happen in 1948. The majority of them were wrong

(*Please turn to page* 294)

Paul O'Brien is Director of Purchases for the Frank Adam Electric Company, St. Louis, and is currently serving on the Executive Committee of the National Association of Purchasing Agents as Vice President for District No. 3, which includes the Chicago, Denver, Kansas City, Milwaukee, St. Louis, Rock River Valley, Tri-City, Twin City, and Twin Ports Associations. He has been an active member of the St. Louis Association for twenty years, and for more than half of that time has held offices of responsibility in that organization. He served as Secretary for five years, subsequently becoming Vice President, President, and National Director. His regular attendance at seventeen National Conventions is evidence of his keen interest in the broader aspects of professional purchasing, and has made him widely known among the purchasing men of the country. The confidence of his colleagues has been demonstrated in many ways prior to his selection for national leadership, notably in his wartime assignment as liaison man for the St. Louis Association in its contacts with the War Production Board, both locally and nationally.

CENTRALIZED CONTROL OF PURCHASING

Arguments on centralized vs. decentralized purchasing frequently miss the main point

The control function is of greater basic importance to management than the details of purchasing organization and procedure

Effective control of purchases and policy depends on keeping headquarters informed about what is being bought, where, and why

•

By Charles J. Harter

Centralized Control

THE interesting and informative articles in PURCHASING which advocate Centralized Purchasing or Decentralized Purchasing have failed to reflect one important facet of this problem, that of Centralized *Control* of Purchasing as a specific management objective rather than merely as an organizational or procedural problem. Centralized control is essential if the policies of management are to be applied to purchase functions at all levels, because under either central control or decentralized control there will always be exceptions to cover special situations, break-downs in the routine, emergency needs, and the like. It is essential that control be maintained over these exceptions, as well as over the authorized routine. Further, means should be provided under either Centralized Purchasing or Decentralized Purchasing for the Central Control to receive all the help, information, and counsel that it can obtain from the local forces.

Because local personnel are diffident letter writers, particularly in criticism of headquarters, management resorts to several means of giving out information as well as receiving information. Sometimes it is done through "liaison officers", who travel around like the bee, sipping honey from flower after flower, and return to headquarters with some idea of what is going through the collective local mind. Sometimes headquarters calls conferences which are attended by local personnel, and various subjects of interest to management are discussed; presumably management gets the benefits of the views of the local folks as well. But often it seems that management gets the most benefit from plucking the local representative from his home and transplanting him to headquarters, where he is squeezed dry of his local experiences and then tossed back into the hinterland, at a new place, to acquire new experiences.

It is my purpose to show that this flow of information to headquarters can be accomplished in another way, as a part of the purchase routine.

Classification of Purchases

Centralized Purchasing ordinarily is designed to cover two needs:

(1) The maintenance of required stock levels for items in constant demand and for which there are known specifications. Such items are the stock in trade of the central purchasing organization. A sound inventory control plan and replenishment cycles best adapted to specific commodities enable centralized purchasing to maintain supply effectively in balance with demand.

(2) The procurement of items to meet specific programs, needs, or requirements of a non-recurring nature.

But there will always be some items which do not fit under either of these two classifications. An item may be procured in the second group, only to slide over shortly into the first group. Or it may be procured as an interim or emergency replacement for an item in the first group, and gradually replace the item for which it was only an emergency substitute. And always there is the procurement to cover breakdowns or deficiencies in the regular routine. It is my belief that the decentralization of purchasing is effective in meeting these requirements *only* if it be accompanied by centralized control of purchasing.

In theory, Centralized Purchasing is part of one great, happy family in the management organization, and breathes down the neck of the designer, the technician, and the production groups at all stages, so that changes in design or practice

which affect procurement or levels of supply may be detected while being formed. In practice, however, it will be accepted that most purchasing officers must emulate Lazarus, who, as you may recall, was the beggar who crawled under the table and subsisted on the crumbs which fell from above. The casual luncheon engagement, visits from sales personnel, conversations at the social get-together, all play a part in keeping the centralized purchasing officer abreast of "what's cooking" in company plans.

Decentralized Operation

While such knowledge is of immediate value in the control of replenishable items, it is of equal value in the non-replenishable items. The more general information that a purchasing officer acquires, without too much special information, the better may he perform his job. Oftentimes the purchasing officer can supply the missing bit of a production jig-saw puzzle because he is familiar with materials, not so much with the technical application but their qualities, adaptabilities, etc. He must, through the knowledge which he obtains, frequently translate it into terms of replenishable or non-replenishable materials, the effect on stock levels or procurement cycles, and related factors.

Objectives of Control

If we accept the premise that this happy state of affairs has been attained at headquarters, how can we ensure that what is going on outside of headquarters also becomes available to the centralized purchasing department? There has been a remarkable delegation of authority by headquarters in recent years, quite aside from purchase functions. In many instances, management at field points is almost completely independent from central control, except as to results. Hence there may be a lot going on outside of headquarters which should be of value to centralized purchasing. New idea may be on trial, new materials under test, new procedures placed in practice; a hundred and one things may be going on, all of which will sooner or later affect purchasing.

It is my belief that under either Centralized Purchasing or Decentralized Purchasing, it is essential that effective Central *Control* of Purchasing be maintained to accomplish three broad objectives:

(1) To bring in to headquarters as much information as is known to the field as to supply sources for material of a replenishable nature.

(2) To provide the means for headquarters to measure the effectiveness of decentralized purchase.

(3) To provide—through the same means as are employed to meet the two preceding objectives—a knowledge of basic trends in the price structure, usage data, supply sources, and related matters of application than specific items.

Broader Base of Supply

Under any Centralized Purchasing plan, the aim is constantly to enlarge the area of acceptable supply sources. This effort takes various shapes and forms, but the effort which, in my opinion, has not been used by Centralized Purchasing to the extent that seems justified, is the use of his local or decentralized purchase force to aid him in centralized purchasing. After using the sources known to headquarters, why not send the invitations to bid around to the local purchasing officers, and have the latter hand them around to the sources which would be used by them for interim purchases or to meet emergency needs? Such distribution would help the central office because the local office would be responsible for seeing to it that bids were not solicited from irresponsible or unreliable sources, and the local supply source would be more closely bound to the local purchasing officer if, through that means, he would get a slice of the pie served by the central office.

This method, to me, seems fairer than the method sometimes employed — of issuing open-end or stated quantity contracts covering deliveries throughout the entire organization but then permitting local purchasing officers to detour such contracts on an "even or better

The author, Captain C. J. Harter, SC USN, is currently serving as Staff Supply Officer, Potomac River Naval Command, Washington, D. C. The views expressed in this article are his personal opinions, based on long experience in a purchasing organization in which decentralized operations under a central policy control are inherent in the very nature of the procurement responsibility. These opinions are not to be construed as official or reflecting in any way the views of the naval service at large.

Captain Harter's purchasing experience includes direct buying, administration over purchase functions, instructing at the U. S. Naval Finance and Supply School at Philadelphia, and working with representatives from private industry in developing the Navy Inventory Control Plan. He is known as a strong advocate of close cooperation between governmental and civilian organizations, based on their community of interests and the mutual benefit to be derived from the business experiences of both.

price" basis. Certainly a successful bidder has the right to exclusive access to the business of a firm if he bids on a competitive basis, and he should not suffer diminishment of opportunity by anyone in a local territory who, for one reason or another, later wants to offer a price reduction to get the business.

A secondary aim of Centralized Purchase is the protection of the plan from local snipers. Local purchase of items included in Centralized Purchasing indicates either a breakdown in the procurement policy and routine or an evasion of the requirements of Centralized Purchase. In any event, Centralized Purchasing should know whenever material that is supposedly available through Centralized Purchasing is otherwise procured, and why. Otherwise, Centralized Purchasing becomes a farce, not worth the money and effort devoted to it.

Keeping Up-to-Date

But there is still a third aim of Centralized Purchasing, and a most vital aim as well—the perpetuation of the Centralized Purchasing list by the addition of new items and the elimination of old items. Too often the Centralized Purchasing list tends to become nothing more than a "Who's Who" of 10 or 20 years ago; it contains items no longer in use, and it omits many new items now generally accepted and blithely purchased at the local level. Unless there is a constant overhauling of the replenishable list —the discarding of items only intermittently in use and the inclusion of new items—soon Centralized Purchasing will revolve in a vacuum. Hence Central Purchasing must be kept constantly informed of those items which do not fit into the other two categories but which, nevertheless, are procured by local purchase to meet real or fancied local needs.

Thus far I have been dealing with the needs of Centralized Purchasing, regardless of the extent to which decentralization of purchase functions has been authorized. But it will be found that in practice, any decentralization is accompanied by some form of restriction. This restriction may be directed against specific items, groups of items, or commodities, which are reserved to Central Purchase or which are assigned to specific local offices. It may be directed against purchases when they exceed specific amounts of money for individual items, or groups of related items, or it may be directed against all local purchases for a given period of time, so they may not exceed specified monetary limits. What restrictions are imposed is not so material as that Centralized Purchasing shall know to what extent Decentralized Purchasing is living up to the requirements imposed upon it by management. This may be designated as the fourth aim of Centralized Purchasing, supplementing discussion of the other objectives.

Reports on Local Buying

As a necessary by-product to these other efforts, the Central Purchasing organization is entitled to all the information that is available to local purchasing officers as to changes in trend, both in usage of materials and the materials themselves, the availability of supply, the emergence of new supply sources, and similar developments. Some of this information will become available directly and indirectly through the reviews of local purchase action already described. But in other cases it will not become apparent unless attention is specifically directed to that phase of the transaction. Here is a need for sign-posts, red arrows, or other markers to show to the Centralized Purchasing Office that there is more to this transaction than meets the eye, and that pertinent details be given.

Now that we have cited the information which should become available to any Centralized Purchasing Office, regardless of the extent to which decentralization is practised, how shall this be accomplished? It has been proved by long experience that special reports, tabulations, etc., do not provide the data that can be furnished through simply abstracting or pulling papers from the daily routine. In all local purchase organizations there is some piece of paper which serves as the record of the transaction. It may be the "hold" copy of the order; it may be a record of the telephone offer and acceptance; it may be the record of receipt and inspection; or it may be the record of payment. Whatever paper is employed, either a superseded copy or a regular copy should be submitted by the local purchasing office to the Central Purchasing Office, with a sticker attached to show clearly under what category of local purchase it was made, and where pertinent, the reason, simply stated, for the purchase.

The processing of this information by Central Purchasing would follow conventional lines, providing to the commodity specialists a knowledge of what is going on in the field, and why. Sometimes the situation is already well known. For example, at present writing, a succession of small local purchases of sheet steel would be no surprise to Central Purchasing, since the latter is unable to attract any sizeable quotations of this item to meet current needs. But the local purchasing officer, having closer contacts with suppliers in his area, has been able to ferret out some of this needed material. Perhaps the only value of such review would be to note the premium that the local purchasing officer is paying to secure this product. But in many cases, this review by the specialists might develop information of considerable value.

Using the Information

Aside from the specific information of value to the commodity specialists, there would be gained from these purchase reports a knowledge of the extent of local purchasing effort, the particular areas in which most of this effort is being exerted, the monetary value of these purchases in comparison with centralized purchases, new items which are being procured either at one place or at more than one place. A review of these transactions, separate and apart from the commodity review, would provide interesting and valuable information for management.

It would not be necessary to record much of this data; most of it could be destroyed as soon as it has served its immediate purpose or, at best, microfilmed for later reference if desired. The important thing is that it shall be recorded in the minds of the commodity specialists and in the minds of Centralized Purchasing management. Perhaps one item, or a group of items, will make little or no impression on either group, but if repeated again and again, and perhaps from several areas simultaneously, there will arise a natural desire to find out the reasons why such action has been taken.

Most important of all, the very fact that such specific data concerning local purhases under either Centralized Purchasing or Decentralized Purchasing was going to the headquarters where control of purchasing is centered, would in itself be one of the most effective tools of Centralized *Control* of Purchasing in the attainment of common standards of purchase action, in the control of evasions of authorized practices, and in the determination of basic changes in the trend of demand or supply.

THE FREIGHT CAR SHORTAGE

Transportation bottlenecks affect purchasing policies. Therefore, in more ways than one, the car shortage is a problem of procurement

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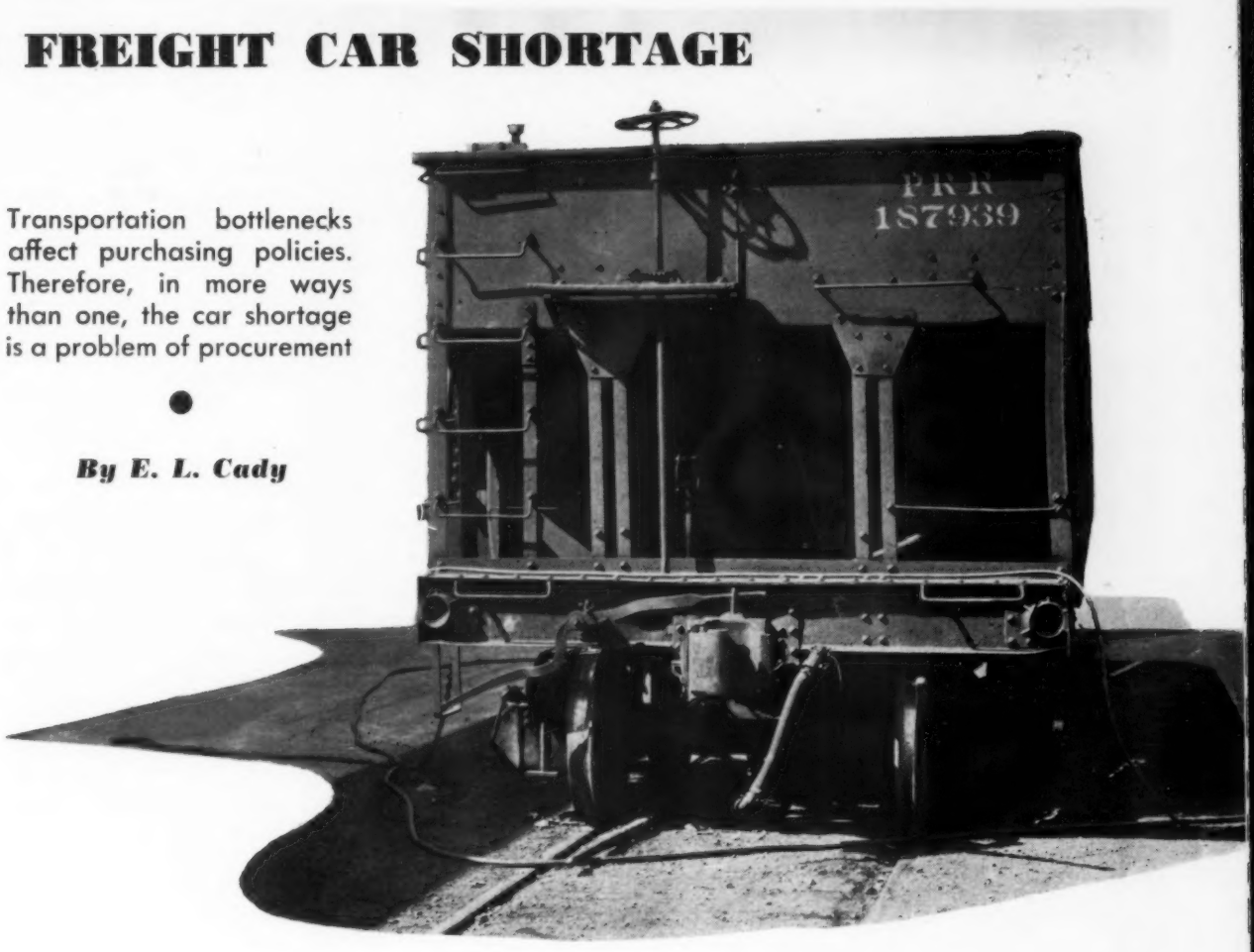
By E. L. Cady



AS seen by the industrial purchasing agent, the freight car situation has two phrases: (1) the availability of freight cars, and (2) the physical condition of the cars he is able to find.

His estimates of what the future holds in those two matters is a factor in the purchasing agent's decision on such points as whether or not to buy further in advance so as to have goods when his plant needs them, erect or hire more warehouse space for larger inventory backlogs so that his plant will not be hampered by non-arrival of materials, instruct that more materials shall be shipped by truck or even by air freight, buy or hire his own fleet of trucks, buy or hire his own freight cars.

It is possible that by forcing the consideration of such strategems, the freight car shortage will lead many a management to take moves which should have been taken years ago and which will be highly profitable. Pressures change habits. But for the most part the shortage will reduce the purchasing agent's ability to perform his profitable function of keeping his operations sensitive to market changes, and will increase all of the costs and risks of doing business. The best answer to the freight car shortage is more freight cars.

The physical condition of the available cars prompts somewhat similar considerations. If a car is in poor shape, then bulk materials such as coal or wheat may leak along the railroad right of way, packaged goods may be damaged by the weather or lost by pilfering, vibration or shock damage to shipments may be severe, adequate bracing of shipments upon car floors or against walls may be unduly costly or even impossible. That some compensation for such damage might be collected is beside the point in these present days. The physical presence of usable goods is far more important right now than any money which might ultimately (after the usual dickering) be collected for damage done to them while in shipment.

From the viewpoint of the purchasing agent both factors combine into one. If the shipper cannot get freight cars, then he must carry larger inventories and otherwise protect himself against delayed receipt of goods; and if the cars are in poor condition so they take more time and man power to load, and if the goods are damaged in transit, then he must carry still larger inventories in order to have adequate supplies of materials on hand.

How Many Cars Are Needed?

Nobody completely knows how many additional cars are needed to relieve the situation. This is especially true when considering individual types of cars such as box cars, hopper cars, and reefers (refrigerator cars).

Estimates run all the way from 140,000 to 500,000 total of all types. The figure having highest likelihood of accuracy is 300,000, as estimated by Colonel Johnson, the head of the O.D.T. Of these, 100,000 are to be additions to present fleets, and 200,000 are to be replacements of cars which badly need junking. But if industrial purchasing agents and shippers were to make a concerted demand that freight cars be modernized and improved the way machine tools and all other equipment which serve industry have been, or if the purchasing agents even demand that the box cars be sufficiently and shock-eliminating so that huge costs for crating and other protecting of goods in transit could be eliminated, then 500,000 (the pres-

WHAT THE PURCHASING AGENT CAN DO ABOUT THE FREIGHT CAR SHORTAGE

1. Get loaded cars empty as quickly as possible, and get the empties which you are not to reload back into the hands of the railroads as quickly as possible. General averages may suggest that this policy has reached the limit of its returns, but individual actions can beat general averages.
2. Load as fully and heavily as you can, even though you hold a car an extra day to do it. Within common sense limits, full loading now seems more important than the quick dispatching of partially empty cars.
3. Share the cars. Consent to part loading with your goods and part with the other fellow's, with multiple stop deliveries, for the sake of full loading.
4. Inspect cars carefully before loading. Respect the "25-25" situation: about 25% of all freight cars are more than 25 years old. If you load an old car, protect the goods with extra care. About 50% of all freight cars are over 21 years old.
5. Route a car back to the road which owns it every time you can. The disrepair of cars is serious and is costly to every shipper. The owning road is the one most likely to put a damaged car back into good repair.
6. Let the freight service salesmen know that when the time comes that you can have a choice of roads which want business, you will favor the ones which offer such improvements as fastest traveling speeds rather than freight schedules arranged to eliminate train speed competition.
7. Also let those salesmen know that you will favor roads which install such advanced equipment in freight cars as ball and roller bearings, corrosion resistant materials, lighter weights. Modernization is a servant worthy of its hire.
8. Back up the freight car builders in their pleas for more steel.
9. Sell your materials handling executives and personnel on quick release of empties, full and quick loading, routing cars back to home roads, being careful neither to do damage to the poor old cars nor to so load them that the bracing or the leverage of the bracing or the shifting movements of the load will aggravate the weaknesses of the cars.
10. Use alternative shipping methods such as ships, barges, trucks, and plan to keep right on using them until the railroads modernize their freight cars and their attitudes toward competitive freight schedules.
11. Think carefuly about owning or hiring your own specially designed freight cars. You probably cannot get them right now, but they offer profits similar to those of any other specially designed materials handling equipment.

ent top estimate) would be a gross under-estimate of the number of cars needed.

The confusion in the estimates is not due to lack of statistics nor of statisticians to interpret them. Rather, it arises from the fact that nobody knows how much use or how efficient use will be made of the cars.

Efficiency of Use

Railroading, as every reader knows, bases all freight car figures upon ton miles, a ton mile being the transportation of one ton of freight for one mile.

Obviously, the ton miles of an individual car depend upon how many tons are loaded upon it, how far the shipments travel and how much total time is taken to load and travel and unload. But so far as efficiency of use is concerned, these factors are somewhat at enmity with each other.

By far the largest factor is "stand still" time—the hours during which a car is not actually rolling on the rails. The average car stands still 21.14 hours (1946 averages) for every 2.46 hours it rolls; a ratio of nearly 10 to 1. Or to put it another way, the car actually works less than a three-hour day.

Railroaders argue that if the loading and unloading of cars could be speeded up, this stand still time could be reduced to the point where there would be no car shortage. They point to the five-day week as causing cars to stand idle at loading platforms during long week ends, also show that industries have no warehouses for their present protectively-large inventories and so perforce must hold incoming loaded freight cars as places of storage. By contrast, the railroaders demonstrate that faster freight schedules would only attack some 10% of the total time available to a freight car and therefore would hardly be worth the trouble.

Since the more efficient loading and unloading of cars is the one way in which the industrial manager can best help the situation, this statement should be studied. And upon study, like so many other claims in the witch's brew of transportation, it trips over its own statistics.

Experince has shown that an undue shortening of the time during which cars may be held at shippers platforms results in fewer tons loaded per average car. Obviously, the rolling of two half-empty cars has the same effect as if one were full and the other temporarily

did not exist; it increases the shortage.

The rapid but partial loading of cars can increase the stand still time which is expended along railroad rights of way. A regulation increasing the amount of l.c.l. freight which had to be aboard before a car could roll had the immediate effect of increasing the stand still time which cars spent in railroad sheds. The permissible lengths of freight trains and their amazingly low traveling speeds (an average of only 16 miles an hour) combine to nullify the effects of partially loading cars in order to get them away from sidings quickly.

Railroad authorities actually have proposed formulas by which, for a given increase in the tonnage loaded per car, the time period during which the car would be permitted to stand at a shippers platform would be increased, the commonly proposed figure being one half day of extra time for each ton added to a basic thirty tons of pay load. If and when such regulations are adopted they may help a great deal.

Under present regulations, then, the direct experiences of railroads suggest that the forcing of shippers to unload and reload more quickly has reached the limitation of its returns and that further pressure will result in more lightly loaded cars with a consequent reduction of ton miles per car and an increase of the car shortage.

As for the claim that faster traveling speeds of freight trains would contribute nothing, industrial managers have heard that argument about every plan for basic changes in materials handling and production equipment. Higher speeds would put more cars on sidings during the five days per week when the most labor is available for unloading and reloading them, and thus would get more service from the same cars and make more cars available. Higher and more dependable traveling speeds would permit the purchasing agent to schedule the arrival of goods more accurately, and thus would encourage him to have one car loaded heavily rather than telling the shipper to dispatch partially loaded cars as rapidly as he can get them away.

Although the general averages of loading and unloading speeds may have reached the limits of their returns, there still are plenty of individual chances to get cars away from sidings more quickly, and this should be done. Also, the purchasing agent may well let the freight service salesmen know that when the car shortage pressure is ended—and even a minor recession in business volume would end it—then his business is going to the competing roads which show the fastest and most efficient schedules right now.

Higher railroad efficiency can be had if industrial purchasing agents bring hard and unrelenting pressure for it. The present emergency is being handled with 600,000 fewer freight cars than were in existence at the end of World War I. Better railroad equipment of all kinds other than freight cars is permitting this to be done. But that equipment and its operation still can be greatly improved.

New Cars—How Soon?

If 300,000 new cars will end the shortage, then the end is more than two years away.

The gross capacity of all the car building companies is about 8,500 cars a month, to which the railroad shops can add 1,500 for a gross total of 10,000. This is not the absolute limit, but is a fair figure; the building capacity might reach 15,000 a month if the shops devoted no facilities to car repair work and all other factors were highly favorable. But the peak month since the end of the war was 7,500 and there is no sign that the average month will approach that. An average of 6,000 a month will require some four years, and during those years old cars will not cease to wear out.

Principal causes of delay are (1) lack of steel, and (2) lack of special parts, appliances, sub-assemblies and components. The second shortage is also largely attributable to the first, i.e., lack of steel.

Behind the lack of steel is a refusal of railroad companies to place car orders before the government granted freight rate increases. The delay prevented them from getting well placed on the shipping allotment lists of the steel mills.

The purchasing agent may find it to his advantage to support the railroaders in their pleas that steel be diverted from export to the car building shops.

Why Car Building Has Lagged

Freight cars have lagged behind all industrial equipment and most railroad equipment in design, improvement, replacement and repair because every railroad management has the "excuse to end excuses"—that a car is likely to spend a great deal of its time on the rails of competing roads and that "improvements confer more benefits to other roads which will hold the car upon their rails than to the home road."

Strange to say, this is the one matter regarding which the railroads seem to have no statistics. A generally accepted figure is that a car spends half or more of its time on the rails of roads other than those of its owner. There is no publicly released evidence to show whether this figure is approximately accurate or is a gross over- or under-statement.

One tactic which every shipper can follow is to route a car back to its home road every time he can.

Would Standardization Help?

All freight cars of a given type such as box cars look so much alike that it is something of a shock to the casual observer to learn that they are full of special features, from their wheels to their roofs, and that the fully standardized cars, to be made exactly alike for all railroads, are now for the first time being ordered on an extensive scale.[1]

Reasons for specifying special features include whims, maintenance formulas, peculiar needs of shippers served by the road, use of products fabricated by "home" industries, suitability to terrain peculiar to the road, resistance to weather conditions found along the road. It may be hard for an outsider to understand why all but the maintenance formulas and the buying from plants located on the road are not defeated by the "excuse to end excuses" that the other benefits will be reaped by "foreign" roads, but the railroad fraternity seems to understand this point.

The basic maintenance formula is that a standard car will go three

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[1]According to the *Chicago Journal of Commerce* (October 16), popularity of the standardized box car has increased to a point where approximately 20% of orders now on the books are for the "package" type, constructed to builders' specifications instead of those of the purchasing railroads, and a substantial number of orders for standardized hopper cars have also been placed. The actual saving in cost for a "package" car, as compared with a "custom built" car, are not disclosed, but some sources place the saving as high as 15%. One railroad official says the low bid of a car builder on a recent order for hopper cars, on which no special specification was written, was $400 per car lower than his own purchasing department had estimated. Pullman Standard, American Car & Foundry Co., Pressed Steel Car Co., and General American Transportation Corp., are now in the standardized car field. C&O Railway claims to have been the first to order a substantial number (2,000) of "package" box cars, and so to have given real momentum to the program.—Ed.

years before needing more than routine maintenance such as lubrication, and will last a total of seven years before approaching the average maintenance cost of $200 a year. The special features are intended to postpone the reaching and exceeding of the average. But since a standard car costs a rough average of $4,000 and the special features may cost as much as $1,500 more, the prediction of their effects upon maintenance costs requires a very long look into the financial future.

Executives of large car building companies, speaking independently of each other and very carefully "off the record", all estimated that *if* steel were freely available, standard cars could be built in one-third less time than the specials and the shortage could be alleviated that much sooner.

The hitch is that the maker of the special device has his allotment of steel and it will not be taken away from him. The car builder who puts steel into a standard roof will not have that steel for walls. If he buys a special roof he draws on the steel of the roof maker and keeps his own for walls.

Counterbalancing this is the fact that the specialties often hold up production by failing to arrive on time.

Altogether, the car builders feel that the ordering of fully standardized cars by the railroads would end the shortage more quickly, but they cannot guess with accuracy what the full effect would be unless the steel allotment system were changed.

Would Lighter Weight Help?

Trade papers have carried many stories of how high tensile steel, stainless steel, clad steels, aluminum, plywood, and other materials would lighten the weights of freight cars. There is a strong probability that these materials also would speed car deliveries.

As for other advantages, lighter tare weights should permit faster freight schedules with less wear and tear on operating equipment, and lighter cars could be handled more rapidly by factory labor which must spot them along industrial sidings and so would be loaded and unloaded more rapidly.

Opposing this is the excuse that "the other road would reap the benefit", and also a more solid reason—that the braking problems may need study.

If a car has an empty weight of less than 25% of its weight when loaded, it is likely that the wheels may become locked and begin skipping rather than rolling on the rails if it is braked by ordinary braking equipment when empty. Differential braking systems to overcome this are being worked out. But the light weight car idea does not seem to be an immediate alleviator of the present car shortage.

The industrial purchasing agent probably could not buy his own freight cars for any quicker deliveries than the railroads can get, unless he can supply the car builder with the steel for making them.

Owning or renting special types of cars is a business strategem which is certain to come into ever increasing use. If the railroads will not improve the cars then the shippers will have to. But so far as the immediate shortage is concerned, only a business recession seems likely to relieve it for some time to come.

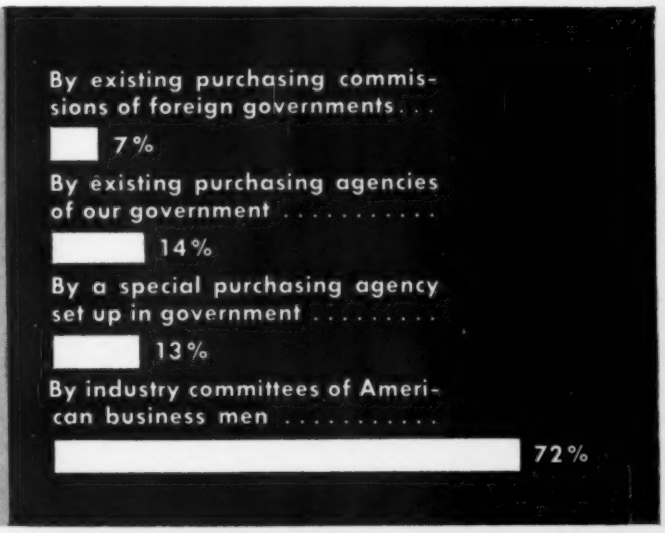
The purchasing agent does not have to sit by with folded hands. He can help himself in several ways, as suggested in the accompanying check list. Most of all, he can press for improved car designs and faster, more efficient freight schedules. As long as the freight car situation is under such intensive study, the industrial purchasing agent might as well put his weight behind the improving of freight performance in addition to the mere relief of immediate troubles.

Purchasing Policies in the FOREIGN AID PROGRAM

Within a comparatively short time an American program for the relief and rehabilitation of Europe will be put into effect. The diversion from the domestic market of vital materials and products necessary for the operation of the plan will inevitably result in further shortages in some classifications for American consumers, and a strongly inflationary price factor. In an effort to analyze some of the major problems of procurement and the basic economic considerations affecting purchasing policies involved in the program, PURCHASING polled a cross-section of purchasing executives in all parts of the country. Their opinions and suggestions follow:

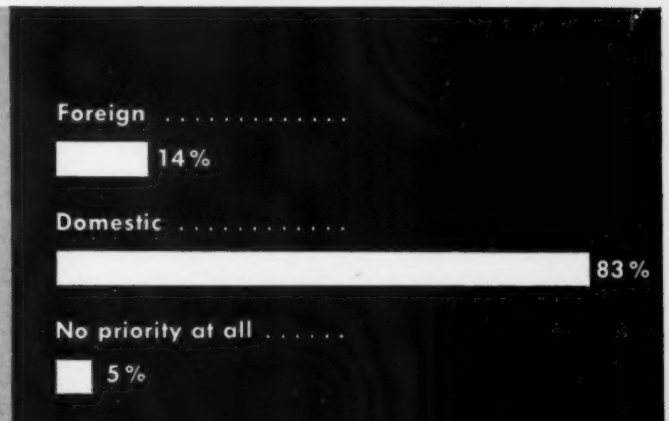
❶ In your opinion, how should the purchase of materials for foreign aid be handled ?

Note: Some respondents named more than one choice on this question so percentage factors total more than 100.

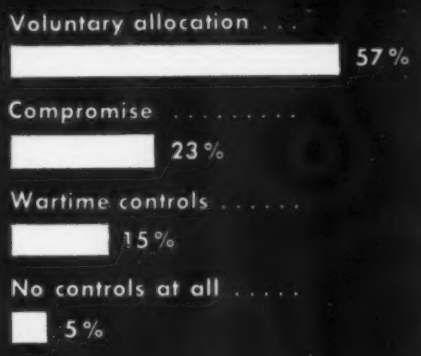


❷ In your opinion, should priority be given to foreign aid requirements or to domestic demand ?

Note: Some respondents named more than one choice on this question so percentage factors total more than 100.

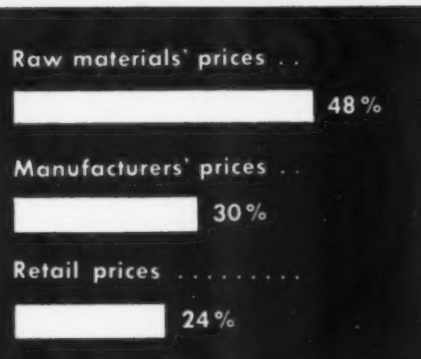


3 Do you think that a program of voluntary allocation or rationing would be successful in working out the plan, or is a wartime type of control necessary ?



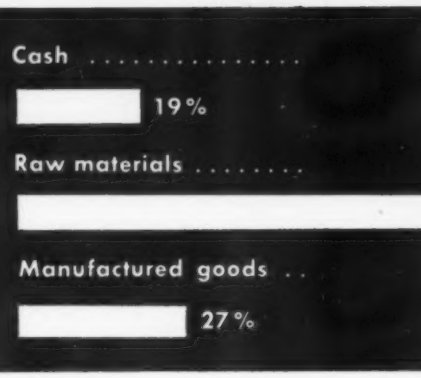
4 If price controls are necessary in connection with the foreign aid program, at what level should they be applied ?

Note: Some respondents named more than one choice on this question so percentage factors total more than 100.



5 In your opinion, what type of repayment for loans is most feasible ?

Note: Some respondents named more than one choice on this question so percentage factors total more than 100.



WHAT THEY SAY

"Am apprehensive that the whole thing will wind up as a political football, in view of the proximity of November, 1948."

"Let's be helpful to our neighbors, but leave some work for them to do."

"Domestic economy cannot be stabilized until the European situation can be controlled for some foreseeable length of time."

"In buying by our government for foreign relief, they try to buy too much, too quickly, and stop buying too abruptly — excessive stress is put on quality as well."

"Feel that the biggest problem is not procurement, but proper ordering by recipients with U. S. 'know-how' assistance and proper distribution on arrival."

"Priority to foreign or domestic requirements without regard to the other would almost certainly lead to (1) possibly disastrous inflation at home or (2) dismal failure of the foreign aid project."

"Make foreign nations pay at least in part by returning a ton of scrap for each ton of steel products delivered them."

"I don't believe efficient buying can be done by men not familiar with the things they are buying. In large industry we have buyers that are experts in their respective lines, why not in this case?"

"Believe that once private enterprise, and business in particular, is completely free to go ahead and develop and progress in its own right without fear of being taken up short by controls of one kind or another, that we will be able to standardize our own economy and give material assistance to the rebuilding of Europe."

"I favor emergency aid to starving people, but I do not believe we are going to buy democracy that way."

"The first need is to eliminate starvation from all countries. Next, furnish necessary equipment and supplies enabling them to become self-supporting."

"Let's take care of ourselves. What would they do for us?"

"The aim should be greater productivity, not controls."

How LAMSON & SESSIONS Buys

Establish sound purchasing policies and the details will take care of themselves

●

● ***By William R. Murphy***

George W. Hinds, Director of Purchases

Mr. Hinds began his purchasing career in 1916 as Purchasing Agent and Traffic Manager of the Falls Rivet Company, of Kent, Ohio, which subsequently became part of the Lamson & Sessions organization. His introduction to the problems of procurement came during the difficult days of the First World War. In 1926, he was called to the main office at Cleveland as Purchasing Agent in charge of a buying program amounting to about $9 million per year. In 1944 he was named Director of Purchases. He saw the company through the even greater difficulties of the Second World War period with distinguished success, and now directs a purchasing program with expenditures of some $25 million annually.

THE procurement of commodities running into millions of dollars in annual value, using a "system" that comprises only a few simple forms, is the result of thirty years of experience, study, and experiment on the part of George W. Hinds, Director of Purchases for the Lamson & Sessions Company of Cleveland, Ohio, and his staff of competent and highly trained assistants. The Lamson & Sessions Company has five plants engaged in the manufacture of bolts, nuts, cotters, capscrews, and other fasteners. Two of these plants are located in Cleveland, one in Chicago, one at Kent, Ohio, and one in Birmingham, Alabama. All except the Birmingham operation send their purchase requisitions directly to the main purchasing office for approval.

Not only is this purchasing department conducted with unusual economy of time and money, and with a minimum of red tape and paper work, but the essential records —complete, analytic, and up to date —are readily available at all times in the files of the department.

Instead of building up a large department, with an extensive organization of buyers and clerks which might be justified by the volume of business handled, Mr. Hinds has reduced the number of forms and reports, and has trained his personnel to eliminate all unnecessary work. The comparatively small staff can thus handle a tremendous number of transactions with comparative ease. The simplicity of purchasing procedures is deceptive, for a lot of time and thought has gone into their development to the present efficient stage. But that development has consistently taken cognizance of the fact that procedures are of secondary importance compared to the underlying policies. Establish sound policies, and the details will take care of themselves. Sound and definite policies of procurement have been laid down and put into daily practice. These policies are based on two primary ideas: "Simplicity of operation" and "Teamwork in practice".

Company Policies

Departmental policies have their roots in company policies. The essential features of Lamson & Sessions internal policy are teamwork and cooperation among departments and department heads. No department is isolated; all are closely woven into one aggressive and progressive team. This policy starts at the top.

Little if any pressure is ever exerted on the purchasing department in its choice of suppliers and vendors. Mr. Hinds is not the type of official who takes things for granted, and the management knows that if and when he decides to change suppliers for a given item or material he has investigated the new sources very carefully, visiting their plants if necessary, and that he does not make changes without good reason.

There is a friendly atmosphere throughout the organization, and the turnover among employees is very low. Company-wide recognition is given to those who have served the company for long periods of time. In Cleveland, the company has the reputation of being a very good place to work.

In purchasing, Mr. Hinds has

built up a similar reputation, that the company is a good firm with which to do business. He does not feel that any source of supply is a good source unless the seller is making a fair profit. However, he does not expect to be "short changed" either on price or quality. He seeks suppliers who can maintain consistent and satisfactory deliveries. He does not change suppliers unless there is a good reason for doing so. Sending out twenty or more letters for quotations takes a good deal of time and effort—frequently costing more than the results warrant. He is interested mainly in getting the average market price over a year's time.

Mr. Hinds is not a "price buyer". He looks, first of all, for quality materials which will process properly and give the customer the ultimate in quality of product. Next to quality is the service rendered by the vendor, and his reliability, of course. It is a policy of Lamson & Sessions Company to buy from their own customers when they can secure equal quality, service, and price.

He has bought paper cartons from one manufacturer for more than 30 years, and the source for wooden boxes has not changed for a long time. He tries to divide the business among a limited number of sources, all very well known to him and reliable. By staying with certain vendors for years, a sound relationship is established, and he finds that they will "come through" with him in any emergency. He expects his vendors to give him a "break" when conditions justify such action, without any pressure or unpleasantness or threats to cease buying from them. This policy has paid out 100% when he really needs materials.

His philosophy regarding dealings with vendors is well summed up in one of his favorite remarks: "Any deal in which both parties do not benefit is a bad deal for both."

When he takes on a new source of basic raw materials, he allocates to that source a certain number of tons per year based on 100% production. If business drops off, the quota of the new supplier is reduced accordingly, but he still gets his allotted percentage, provided his dealings have been satisfactory and his quality has been maintained. Mr. Hinds always keeps his agreements, and he likes to trade with people who do the same, rather than with fly-by-night outfits who are out to make a killing on one deal. He also expects his sources to keep him informed about the markets when any serious fluctuations are in the offing. At the end of the year, if he has paid about the average market price on his purchases, he is satisfied.

He lays his cards on the table, and he never tries to play one house against another to save a few dollars. One thing he does not like is to be told that a source can and will provide certain commodities and service, then find out that they were bluffing.

Honor System

Mr. Hinds has always dealt in good faith with his sources; he does not try to outsmart the other fellow. In return, he expects the suppliers and their salesmen to play fair with him.

For instance, if a small defect appears in any raw material purchased from the vendor, or if the wrong grade or size is received, or if the material in any way does not meet the exact specifications for the particular order, instead of shipping it back arbitrarily, he will try to find a way to use it. The company manufactures a large variety of items within its general field, and it is frequently possible to find a use for such material.

He tries to help the salesmen who call on him, sometimes going out of his way to enhance the salesman's prestige with his own company. He maintains a strong hold on his vendor relationships, for he regards these connections as of permanent value to the company. In his opinion, vendor satisfaction is as important as customer satisfaction, and vendor turnover is costly in the long run.

The purchasing department can enhance or detract from the reputation of the company through its many outside contacts. It is safe to say that Lamson & Sessions has not suffered, but has always profited by the impressions created by Mr. Hinds and his associates in their contacts with hundreds of concerns throughout the United States.

Sales-Mindedness

He believes that one of the most important qualities of a good purchasing agent is sales-mindedness. He holds that the purchasing department is simply buying what the customer demands. The buyer should enjoy his buying as much as the seller enjoys his selling, for "A thing well bought is half sold". He is a popular speaker at sales meetings, and one of the company's salesmen was heard to remark, at the time when Mr. Hinds was advanced from Purchasing Agent to Director of Purchases, in 1944:

"I hope that George's new job will not prevent his attendance at our sales meetings. His inspiring comments and his informal, cheerful talks to the salesmen have al-

Frank J. DeCrane
Purchasing Agent

General view of the Purchasing Department

A. Purchase requisitions, identified by code letter indicating the plant where request originates

B. Purchase order, number to be inserted to correspond with requisition.

C. Follow-up form, serves both as request and reply

D. Purchase record

E. Rubber stamp used in processing vendors' invoices

Date _____ Order No. E 2643

Date _____ Order No. C 5755

Date _____ Order No. F 83921

Used for _____

Date _____ Order No. K 07800

Order for Dept. _____ Used for _____

Order placed with _____

Date to be shipped _____ Order O. K. by _____

Confirming _____ Order. Deliver to _____

Acct. No.	Quantity	KIND OF MATERIALS

Signed _____

C

FOLLOW UP

Date _____

Order No. _____ Date _____

With Whom Placed _____

Description of Material

Information Wanted

Will Ship _____ Was Shipped _____

Remarks _____

Signed _____

B

PURCHASE ORDER

THE LAMSON & SESSIONS CO.

Manufacturers of
BOLTS - NUTS - COTTERS
WIRE ROPE CLIPS, CAP SCREWS
1971 WEST 85th ST.
CLEVELAND, OHIO

Date _____ 194__

Order No.

Please SHIP the following merchandise SUBJECT TO CONDITIONS below:

Ship to _____ Ship via _____ F. O. B.

Date to be shipped

Terms:

Mail one copy of Shipping Notice to plant to which shipment is consigned. Invoice, Bill of Lading and Shipping Notice to be mailed to 1971 West 85th Street. SHIPMENTS MUST BE PREPAID. Insert Order Number on Invoice and Packages.

ORDER NO.	QUANTITY	ARTICLE	PRICE

IMPORTANT CONDITIONS (See Reverse Side)

1. Mail acceptance of this order immediately.
2. No charges allowed for boxing, packing or crating.
3. If prices are higher than specified, do not ship. Advise us.
4. If price is omitted on order, it is agreed that your price will be the lowest prevailing market price.
5. Goods subject to our inspection upon arrival, notwithstanding prior payments to obtain cash discount.
6. Goods rejected on account of inferior quality or workmanship will be returned to you with charge for transportation both ways, and are not to be replaced except on receipt of replacement purchase order from us.
7. It is agreed that goods ordered above shall comply with all Federal Laws relative thereto, and that you will defend and save harmless this company from loss, cost or damage by reason of actual or alleged infringements of letters patent concerning same.
8. Orders not shipped on date specified may be cancelled by us. In case order calls for partial shipments, balance may be cancelled or suspended upon notice, and suspended shipments may be later taken out if on or before last shipping date specified.
9. If these conditions are not acceptable, please advise us on receipt of the orders, and before you make any shipment.

THE LAMSON & SESSIONS CO.

By _____ Purchasing Agent.

E

INVOICE No. _____

VENDOR No. _____

ACCOUNT No. _____

EXT CHECKED _____

RECEIVED _____

PRICE CHECKED _____

PAYMENT O. K. _____

D

ORDER NO.	NAME AND ADDRESS	SIZE	DATE	PRICE	DATE	PRICE	DATE	PRICE

CLASS _____ ARTICLE _____

ways been one of the high spots of our sales conferences."

Since good selling technique is one of his deep interests, he makes a careful study of the methods used by the salesmen who call on him. He likes a salesman to do a good job for his house. Many of the men who call on him for orders have become close friends, and many times they have called him from their own offices and given him extremely important and valuable information. He likes to reward salesmen who go out of their way to keep him informed. Such team work pays both ways. Salesmen to him are not a necessary evil; they are welcome guests, so long as they play the game squarely with him.

During the depression of the early '30s, Mr. Hinds divided his orders where he felt they would do the most good, to keep factories running an extra day in the week, and to keep men working. Many times since then, when other buyers were frantically telegraphing for shipments, he has had his material rolling in as he needed it. His friends have not forgotten how he took care of them when the going was rough.

Speculative buying has no place in his purchasing program. He takes the position that Lamson & Sessions is in the business of manufacturing bolts and nuts, and is not primarily engaged in the business of trying to outguess a tricky commodities market. Buying is scheduled in line with production only, not for loading up the storage space with large inventories of unneeded materials, hoping for a jump in the market price.

"The procurement officer," says Mr. Hinds, "can control some conditions. Others, which affect all industry, must be met as they arise, with the best intelligence and judgment we possess. Sometimes the portents are so obvious that careful preparation can be made to meet the zigs and zags. But at any time, it is primarily the production schedules that must govern the nature and volume of our buying. One needs a sense of balance and a definite policy to adhere to—a policy that will protect the purchasing dollar and at the same time synchronize with sound procurement practice.

"Tact, honesty, accuracy, and fair-mindedness are the essential qualities called for in successful procurement," he continues. "These should be coupled, of course, with a reasonable amount of intelligence and energy, and the whole-hearted recognition of a code of ethics that should govern all business relations among men of good will."

Purchasing Organization

Key men in the purchasing department at Cleveland are three men of long experience in purchasing and in their affiliation with the company. Mr. Hinds, Director of Purchases, has been with the company for 30 years; Frank DeCrane, Purchasing Agent, for 27 years; G. N. Cottier, Buyer, for 19 years. The major duties of these three principles have been established as follows:

Mr. Hinds reports to the Treasurer of the company. He is in general charge of all purchases of raw materials, fuels, machinery, and factory and office supplies, delegating the actual buying of certain categories to his assistants. He works closely with the production engineers to determine raw material requirements, and personally follows up on all raw material purchases to maintain the required schedules. He buys real estate for the company and handles rentals of leased properties. He is personally responsible for the disposal of scrap, which is an important item in the bolt and nut business, as about one third of the steel purchased becomes scrap in the productive processes. He also handles the disposal of obsolete plants and unused real estate.

He works with the plant managers, technical directors, production control engineers, office managers, and the comptroller, receiving recommendations from them involving the purchase of special materials and equipment for the various departments. He is also in charge of the inter-plant shipment of raw materials and supplies, which is carried on to serve all of the plants and to keep them at high levels of operation. He is directly responsible for the inventories and stock controls at the two Cleveland plants and at Kent, Ohio.

He maintains general oversight of the purchasing done by the Chicago plant, on requisition from Chicago. He is kept informed by that office on inventory levels and local price trends, and gives constructive guidance, counsel, and assistance as required. The Birmingham plant is self-operating on routine purchases, but Mr. Hinds has the final decision on national contracts.

Purchasing Agent

Mr. DeCrane purchases all fuel for the three Ohio plants and Chicago, and has the buying responsibility for stainless steel, non-ferrous metals, furniture, production equipment, warehouse purchases of ferrous metals, containers, and miscellaneous supplies such as packing materials, labels, paper, tags, files, drills, and dies. He is directly responsible for the follow-up on orders he has placed. He maintains records of all sources of supply, interviews salesmen, and cultivates contacts with suppliers in the interest of good business relationships. He also supplies the cost estimating department with price information where estimates are required. He investigates new types of cartons and packaging materials. He reports directly to the Director of Purchases, and in the latter's absence he assumes charge of the department.

In addition to his buying duties, Mr. DeCrane is in charge of the office staff of the purchasing department, and is responsible for the morale and efficiency of the department, and for the prompt and accurate handling of all necessary papers.

Buyer's Duties

Mr. Cottier reports to the Purchasing Agent. He is responsible for the purchase of ferrous metals and miscellaneous supplies for the three Ohio plants and Chicago. One of his special duties is to order all printed forms needed by the general office, receiving and checking proofs and getting approvals. He supplies the cost estimating department with cost data on plating and heat treating work done outside the plant, and places the orders for such work. He handles all routine follow-up.

He verifies prices on vendors' invoices by checking against the original contracts, catalogs, price lists, quotations, and the like. He also works with the auditor to supply facts and supporting data used in verifying figures on invoices and vouchers.

General Staff

The general departmental organization has been built on the theory that such a staff does not exist for its own sake, but to carry out definite functions that contribute to the success of the entire company operation. The personnel has been thoughtfully chosen and carefully trained to carry out these functions without undue rush or strain, on the basis of specialization of effort so that each member of the staff can do one job superlatively well yet be

able to take over other jobs in an emergency. The result is a small, compact team of workers, handling a peak load with only 65% of the personnel formerly required. Each member of the staff understands that the work belongs to all of them, as an operating team, and that no one is "through" until all are through. The spirit of "That isn't my job" is entirely absent in this department; as a matter of fact, such an attitude would not be tolerated.

Purchasing Procedure

Purchase requisitions arrive daily from the three branch plants. Each plant has its own identifying key letter and its own series of numbers. The prefix letter "C" denotes a requisition from Chicago. Requisitions in the "F" series come from the Kent plant (formerly the Falls Rivet Company). "E" is used by the Cleveland east side plant (formerly Lake Erie Bolt & Nut Company). Requisitions from the main plant (formerly Kirk & Latty) bear the prefix "K". Each plant is supplied with pads of pre-numbered requisitions, with a white original and yellow carbon copy to each set. The white copy is the one that is sent to the purchasing department; the carbon copy is kept on file by the using plant until there is no longer any chance of its being needed for reference.

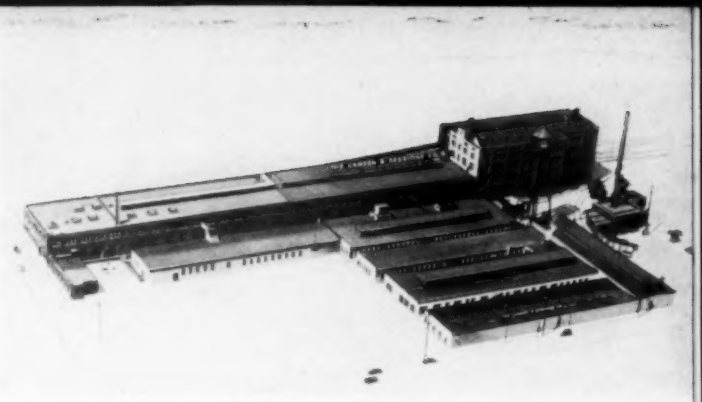
The letter and number appearing on the requisition are also used on the purchase order applying on that requirement. This device makes for a unified filing and reference system, saves time, and avoids any possibility of confusion in handling the papers.

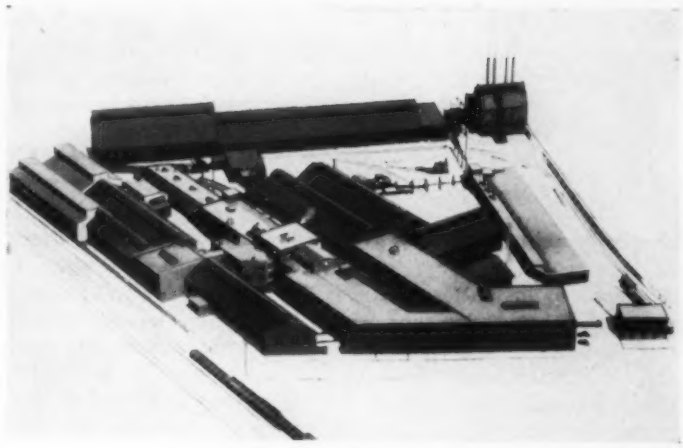
Upon receipt of the requisition, the purchasing department proceeds to negotiate for the purchase. The purchase order is typed in three copies. The white original, which goes to the vendor, contains the important conditions of purchase, printed on the face of the order and on the reverse side, so as to make a legal contract.

As the order is issued, a clerk enters it upon the purchase record and rubber stamps the requisition to indicate that the order has been issued and entered. The white second copy of the order is retained by the purchasing department, filed alphabetically by vendors, for follow-up and reference.

The yellow copy goes to the receiving department to await receipt of the shipment. When a delivery is made, the receiving clerk checks

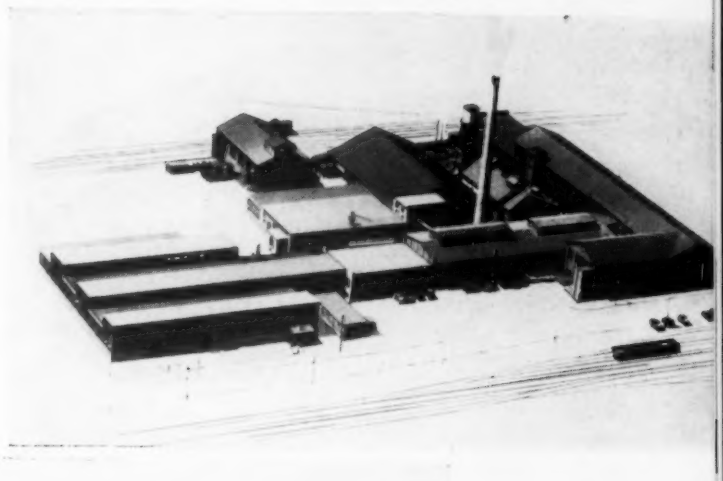
Main Plant

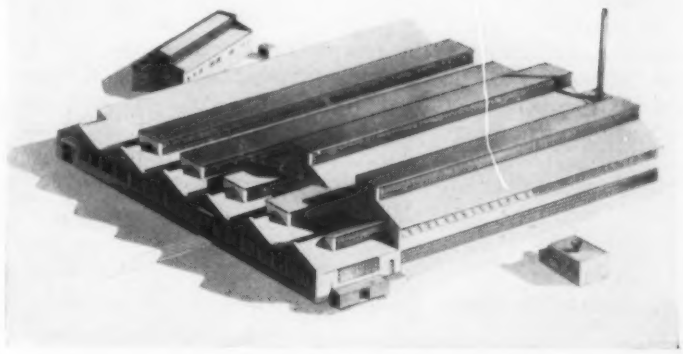




East Cleveland

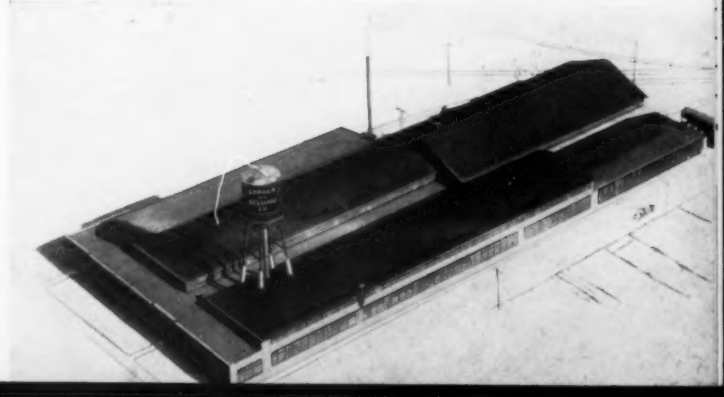
Kent





Chicago

Birmingham



it against his copy of the order. If the shipment is complete, he rubber stamps the purchase order copy, showing date received, then initials it and returns it to the purchasing department to be checked with the invoice. If the order is not complete, the items not received are immediately back ordered. In case there are any discrepancies between the shipment and the yellow order copy, the receiving clerk notes these differences on the order before returning it to the purchasing department. He also saves any packing slips which come with the shipment and keeps them in an alphabetical file for one year from the date of arrival.

Invoices are checked against purchase orders and receiving records in the purchasing department. The invoice is rubber stamped and filled in to show that quantities, prices, extensions, totals, discounts, and net amount payable have all been checked and found correct. The invoice is then OK'd for payment and sent to the Accounts Payable Department. The white copy of the purchase order is also sent to Accounts Payable, where an account number is entered on it, designating the account or category which is to be charged with the purchase, thus facilitating the disbursement.

While one clerk checks invoices against the purchase orders, another clerk keeps the Vendors' Record, noting the goods received and the price changes, if any. This is kept in a visible record book which affords practically instant reference. Any one of the buyers may see the latest price charged by the vendor, without loss of time, in fact while making a telephone call.

White copies of purchase orders are filed alphabetically, by vendor's name. Thus the file provides a cross reference with the purchase requisitions, which are filed numerically.

A record is kept of the number of purchase orders issued each day, also the number of invoices received each day, and the number of invoices left in the purchasing department at the close of the business day. This record, reviewed once a week or oftener, discloses any bottlenecks which need attention.

Follow-Up

Follow-up is initiated by the man who wrote the requisition, when shipments are not received as scheduled. He fills out a follow-up form and sends it to the purchasing department as a request for delivery information. The order number is shown. A clerk removes the white copy of the purchase order from the file and hands it to the man designated to handle the follow-up. The latter communicates with the vendor and learns that the delivery will be made on a specified date. He notes this information on the form, and also on the office copy of the order for reference in case the question should arise again. If the order has already been shipped, he secures the railroad car number or other shipping information and notes this on the form and on the order.

He then initials the form at the bottom, writes in the name of the inquirer at the top of the sheet, and sends it back to the person who made the inquiry.

There are, of course, some cases where more intensive expediting effort is required to secure the delivery promptly. Such action is determined by the particular circumstances of the case.

Purchase Records

An alphabetical list of vendors is maintained, each vendor being given a number. At the close of each year a report is drawn off by the Accounts Payable department, showing the total purchases from each vendor, in dollars. An automatic card system with a punch press is used for this purpose. This record has been kept since 1929. The purchasing department is furnished with this summary information at the close of the year, and the records are filed in binders, by years.

In addition to the complete list of vendors, Mr. Hinds keeps a special record of raw material purchases, showing the tonnage and the prices paid, so that he can ascertain the average price paid for raw material during the year. This record is kept by months. It shows the total purchases from each vendor, the weight, price per ton, and total value. Besides the price feature, it is valuable in giving the exact amount of material each vendor is delivering per month.

This is a compact record, with summary figures for three years on double-page forms.

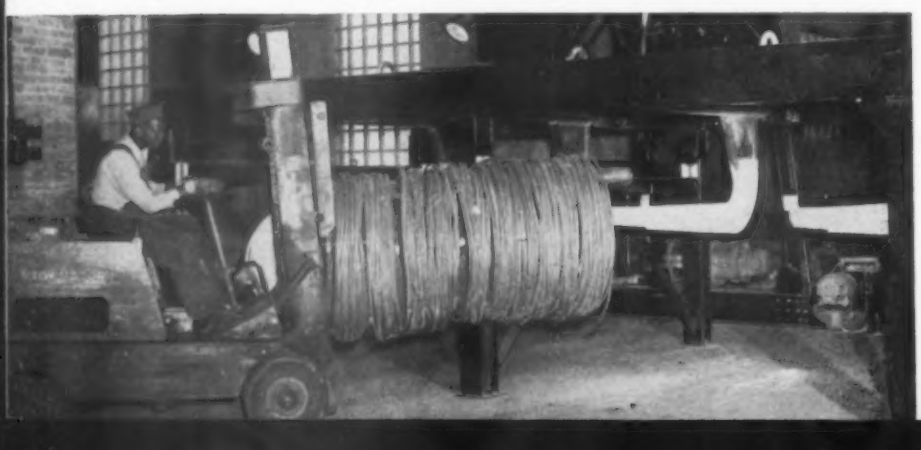
Another record kept by the Director of Purchases summarizes the purchases made from customers of the company, what might be termed a "Reciprocity Record". This is kept by months and years, with parallel columns for each company, headed: "Their Purchases" and "Our Purchases". It proves its value occasionally when a salesman raises the issue of reciprocity and complains that he is not getting a fair share of the business in view of the business his house is giving Lamson & Sessions. Mr. Hinds refers to the book and shows the man the actual figures, quite often to the salesman's surprise. This information is also of interest to the sales department.

Information File

An exceptionally complete information service on commodities and suppliers has been built up in the department, the data being secured from many different sources. In addition to the standard industrial directories and a catalog file which is carefully maintained and kept up to date, the pertinent trade journals are scanned for authentic current trade news, and reports from the Case Institute of Technology are retained for reference. Direct mail also brings news and ideas. Information from these current sources, which may prove useful in future dealings is systematically filed, cross indexed by commodity and supplier's name, for future reference as required.

A great deal of useful information is brought to the attention of the purchasing department by salesmen representing manufacturers and supply houses, and this source of information is very highly re-

Materials handling is highly mechanized



garded. Frequently this buying organization has received important news, and sometimes data of quite a critical nature, by telephone from the friendly contacts developed among its suppliers.

Inspection

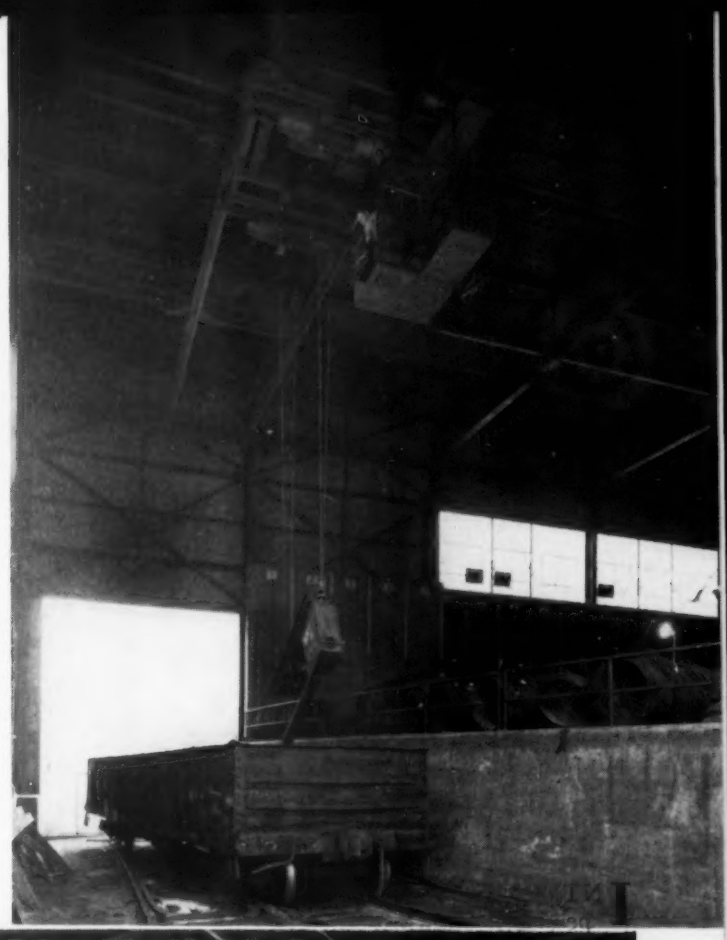
Inspection of incoming raw materials is supervised and controlled by the metallurgical laboratory, whose staff works in close cooperation with the purchasing department.

Every coil of incoming material is checked for heat number, size, and grade, against a copy of the invoice which contains this information. On ferrous materials, above .25 carbon, samples are taken from ten coils of each heat number and are submitted to the laboratory for a metallurgical check. These checks include an acid etch test to determine freedom from seams, laps, pipes, and other objectionable defects, together with hardness tests and microscopic examinations. The samples must pass all of these tests to be acceptable.

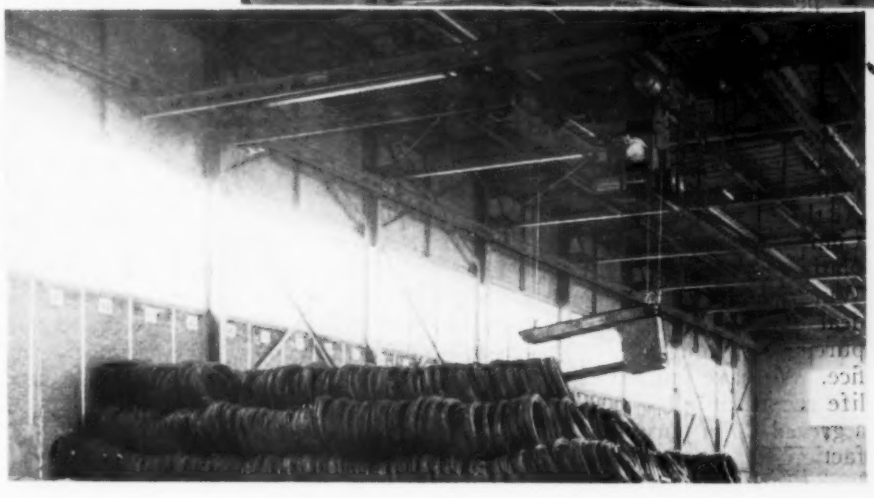
If not acceptable on the basis of the first tests, an additional ten samples are taken from other coils and the tests are repeated. If these samples do not come up to company standards, the purchasing department is notified that the material is not acceptable, and purchasing in turn notifies the supply source.

In some cases where particular requirements must be met, tensile tests, hardenability tests, and complete chemical analyses are made.

The metallurgical laboratory and the purchasing department have made a policy of keeping such tests on a practical basis. No tests are made or specifications set up which are unreasonable or unnecessary to meet the customers' requirements and to insure a high quality product.



Unloading and storage of steel rods



Inventory and Stock Control

The maintenance of proper reserves of raw materials without carrying excessive stocks, is a continuous problem. The purchasing department is responsible for the inventories of all basic materials and for the proper balance in the stores of all materials, fuels, and supplies. A very close control is kept on stocks, without causing any detail work that can be avoided.

All plants make a spot check of raw material inventories, sending the reports and requisitions for replenishment of inventory quantities so as to reach the purchasing office every Tuesday. At the main plant and at the Chicago plant, raw materials are checked continuously, the book inventory being checked against the actual count; a recapitulation is sent to Mr. Hinds once each month. Once a week he goes personally to the Kent plant, where more steel is cut than at any of the other locations and where the tonnage is the heaviest; at that time a spot check of all raw materials is made.

The annual inventory is taken on November 1 of each year, by physical count. Inventories are prices at cost or market, whichever is lower.

Of course the question of storage space enters into the matter of practicable inventory levels, also the time required to replace stocks as they are consumed in production. A reasonable margin of safety is maintained to insure continuity of operation.

Major Equipment Purchases

Factors that are taken into consideration in coming to a decision on purchases of new equipment include: financial outlay involved, productive capacity, durability, disposition of displaced items, maintenance costs and power consumption, and synchronization with other equipment in use.

The investment of large sums of money in permanent capital equipment is necessarily a matter for the

(*Please turn to page* 296)

PURCHASING ON PERFORMANCE

A simple record of the service life of a purchased product enables the buyer to purchase with confidence

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By George H. Nagel

The wire rope life record is checked before replacements are ordered

INTELLIGENT purchasing depends on knowing the performance and durability of the products purchased, and that knowledge in turn depends on factual records. This applies to a wide variety of materials and supplies, but one example may help to show how the principle can be used effectively. At the logging camps of the Nagel Lumber Company in the Sitgreaves National Forest, and at our mill in Winslow, Arizona, we use a great deal of wire rope, all of which is purchased through the Winslow office. We have found that keeping a life record on all wire rope used is a great help in purchasing for satisfaction and economy.

Details of Listings

When we receive a shipment of wire rope, the total footage, listed by size and type, is charged to the warehouse account. The totals are listed by length, type, and manufacturer's name.

If a 300 foot line—¾ inch, 6 x 19, IPS, wire center, preformed—is ordered for one of the camps, the order from the camp must show the following information:

1. Number of feet, size and type of rope needed.
2. Probable date of installation.
3. If the new rope ordered out replaces a retired line, full details are required as to condition of the machine or equipment, condition of the retired rope, and a statement as to whether the replaced rope is to be sent in to the shop, junked, or put to some other use at the camp.
4. If a part of the retired line has been discarded, we require a report on the loss length.
5. If new rope ordered out from the warehouse does not replace a retired line, but is for a new or additional purpose, a letter must accompany the order explaining the exact use contemplated.

Thus we have information both on the retired line and on the new line which replaces it. With this information, each line which leaves the warehouse is set up as a separate account in the rope life record; each line issued is numbered, corresponding to the order number. If an old line is replaced, the accompanying information on the retired line is posted to the record of that line. A page in the wire rope record book is given to each new line issued from the warehouse.

Master Sheet Record

When the full length of any given order has finally been junked or charged off, the page is removed and filed. At this time, the life record of the line is posted to a master sheet, which shows the total service obtained from each individual line, identified as to type and source.

Because of the varied conditions of use, it is not possible to work up a completely accurate life record for automatic comparison. However, the information here recorded does indicate certain trends in experience that can be correlated and used as a basis for sound purchasing judgment. We found that using the record in this way has resulted in a substantial reduction in our wire rope cost.

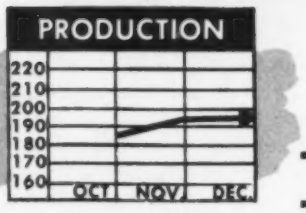
For example: We found that Improved Plow Steel, wire center, gives us about 40% more life than the ordinary plow steel we formerly were using. We have found that on all work where ropes bend over small sheaves, preformed rope outlasts the non-preformed rope by better than two to one. We have found that we get more second and third use from preformed ropes because there is less footage loss from failures and from repairing.

Type is Important Factor

On the other hand, we have found that source is less important than type as a purchasing factor. We purchase rope from four different supply houses. Each of these suppliers handles a different brand. Over a number of years we have found very little difference in rope life, one brand checked against another.

The main point is that we have accurate information on our own experience to guide us in our selection. It is a comparatively easy matter to keep a rope life record, as described, once the set-up has been worked out. Certainly, the gain in better purchasing is well worth the time and effort in keeping this record.

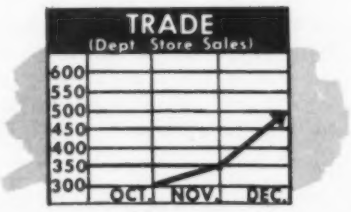
Where We Stand



Today's Business Trends As Reported In Current Statistics

	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1935-39=100	192	190	184	+ 1.0	+ 4.3
Steel Production	000 net tons	1,710	1,695	1,230	+ 1.0	+ 39.0
Electric Power Production	mil KWH	5,218	5,057	4,673	+ 3.0	+ 11.0
Bituminous Coal Production	000 net tons	13,300	12,090	2,308	+10.0	+500.0
Auto, Truck & Bus Output	units	109,728	106,651	93,907	+ 2.5	+ 16.8
Petroleum Output	000 bbls	5,265	5,257	4,695	—	+ 12.5
Engineering Construction	000 $	131,842	147,768	85,674	−18.0	+ 54.0

All Commodities (Bur. Labor Statistics)	1926=100	161.0	157.9	139.1	+15.7	+ 2.0
Semi-Manufactured Articles	1926=100	180.0	175.2	154.4	+16.6	+ 2.7
Raw Materials	1926=100	157.3	155.2	131.6	+19.5	+ 1.4
Manufactured Products	1926=100	153.3	151.0	134.0	+14.4	+ 1.5
Steel Billets, Pittsburgh	ton	$45.00 @ 50.00	45.00	39.00	+11.1	+ 30.0
Steel Scrap, hvy, Pitts., del.	ton	$43.00 @ 43.50	41.50	25.25	+ 4.8	+ 72.0
Copper (Electrolytic)	lb.	.21 ½	.21 ½	.19 ½	—	+ 5.0
Cotton, mid., 15/16"	lb.	.3721	.3417	.3271	+ 8.9	+ 13.8
Rubber, (Rib-smoked sheets)	lb.	.21 ⅝	.23	.22 ½	— 5.9	— 3.7
Wheat (No. 2)	bu.	3.32 ½	3.01 ¼	2.31	+10.3	+ 43.9



Dept. Store Sales Index (Fed. Res)	1935-39=100	507	347	475	+46.0	+ 7.0
Commercial Failures	no.	79	81	24	— 2.4	+229.0
Freight Carloadings	cars	878,588	792,339	729,084	+10.8	+ 20.4

Stock Prices (Standard & Poor's)	1926=100	117.8	122.4	123.8	— 3.7	— 4.0
Bank Clearings (Dun & Bradstreet)	mil $	13,652	15,861	12,010	−16.0	+ 13.6
Federal Reserve Credit	mil $	22,934	22,789	24,416	+ 0.6	— 6.0
Currency In Circulation	mil $	28,722	28,539	28,812	+ 0.6	— 3.0

Materials & Markets

Materials & Markets

METALS

With production at an all-time high, the demand for steel continues unabated and unsatisfied. Further tightening is inevitable as the European aid program takes more definite shape, with the question of allocations dependent on Congressional action to get the plan into its final form.

The foundry industry has claimed that wide use of pig iron by steel mills in place of scrap will force curtailment of operations and some shut-downs. Meanwhile, the improved scrap situation of the past few months will tighten again during the winter. Scrap prices remain firm.

The current aluminum shortage has been highlighted by the government's decision to sell its reserves (not stockpiles) to industry. Producers' deliveries on some items are running four to six months behind orders. Tremendous demand for aluminum is based on its use as a substitute for steel, copper and lead, and the present pinch is felt the most in the supply of aluminum sheets. Automobile makers are using great quantities of the metal in place of steel, and probably will continue to do so for some applications if and when the steel shortage ever ends.

Copper deliveries to domestic consumers continue at a high rate, with no slackening of demand. Here, again, the European aid program will boost the demand for copper, copper and brass mill and wire and cable mill products, but how much is still uncertain. Steady high production, here and abroad, is expected to keep prices firm.

The British plan to pay higher prices for tin in the Straits Settlements, before conclusion of the U. S.-Bolivian contract negotiations, and the price increases asked by Bolivian producers, will force tin prices up. United Kingdom consumers are already paying 91¢ a pound, up from 78¢. Supply will remain short because of the failure of South Pacific production to return to normal.

Lead production is on the increase, due chiefly to the improved manpower situation, the western states and recent ore discoveries. Imports, however will be necessray to meet current demand, and prices will remain as is. Huge increases of exports to this country by foreign nations in an attempt to get dollars would have a depressing effect on prices.

Tinplate prices for 1948 have been raised $17 to $21 a ton . . . A reduction in the price of nickel of 1¼¢ a pound has been announced, following the reduction in import duty, and the price is now 33¾¢ a pound . . . The demand for zinc still exceeds supply, as more steel becomes available for galvanizing.

FOREST PRODUCTS

The seasonal slowdown in construction is easing the heavy demand for lumber somewhat during the winter months, but production is still far from meeting needs. Limited plant facilities, equipment, labor and resources are factors holding back production. Demand will return in full force in the spring when building operations increase. No price decline from present peaks is expected, with possible increases due to freight rates, labor, and spring demand.

Improved supplies of wood, pulp and other raw materials have contributed to an increased supply of paper and paperboard. This, combined with a greatly increased capacity slated for the industry in 1948, has led to predictions that supply will meet demand (except for newsprint) this spring. Increased freight rates and wages may lead to price boosts, in addition to those recently announced.

AGRICULTURAL COMMODITIES

The 1947 wheat harvest of 1,364,919,000 bushels of wheat is a record, but still 41,000,000 bushels below November estimates. Both domestic consumption and the export demand will feel the effects, as wastage and use as feed have not been considerably reduced. Despite a slight decline in December, prices remain at a high level.

The total corn crop for the year has been reported at 2,400,952,000 bushels, the smallest since the drought year of 1936, and lower than November estimates by almost 47,000,000 bushels. Quality, however, has been much higher than anticipated, it is said.

FUEL

Petroleum products, still in short supply, face an estimated 6% increase in demand in 1948. A shortage of tankers, and an increasing number of consumers have produced an extremely tight situation, particularly in the east. Fuel oil shortages in the northeast have led to predictions of "crisis" during the winter months, unless the industry is allowed some sort of voluntary control set-up. The difficult supply problems on petroleum products are expected to continue at least for several months. The price trend on finished products continues upward, reflecting the 50¢ per barrel jump in crude oil prices last month.

Continuous high production and easing of the freight car shortage are brightening the coal picture. Bituminous production in 1947 came near the record high of 1944. Demand continues at a high level, as consumers turn to coal in face of the fuel oil shortage. Foreign aid is not expected to affect domestic availability to any great degree.

CHEMICALS

Consumption of heavy chemicals continues at a high rate, and shipments are said to be maintained at a satisfactory level . . . No let up in the demand for caustic soda, soda ash and other alkalies is noticeable . . . Producers of calcium chloride are several months behind on deliveries.

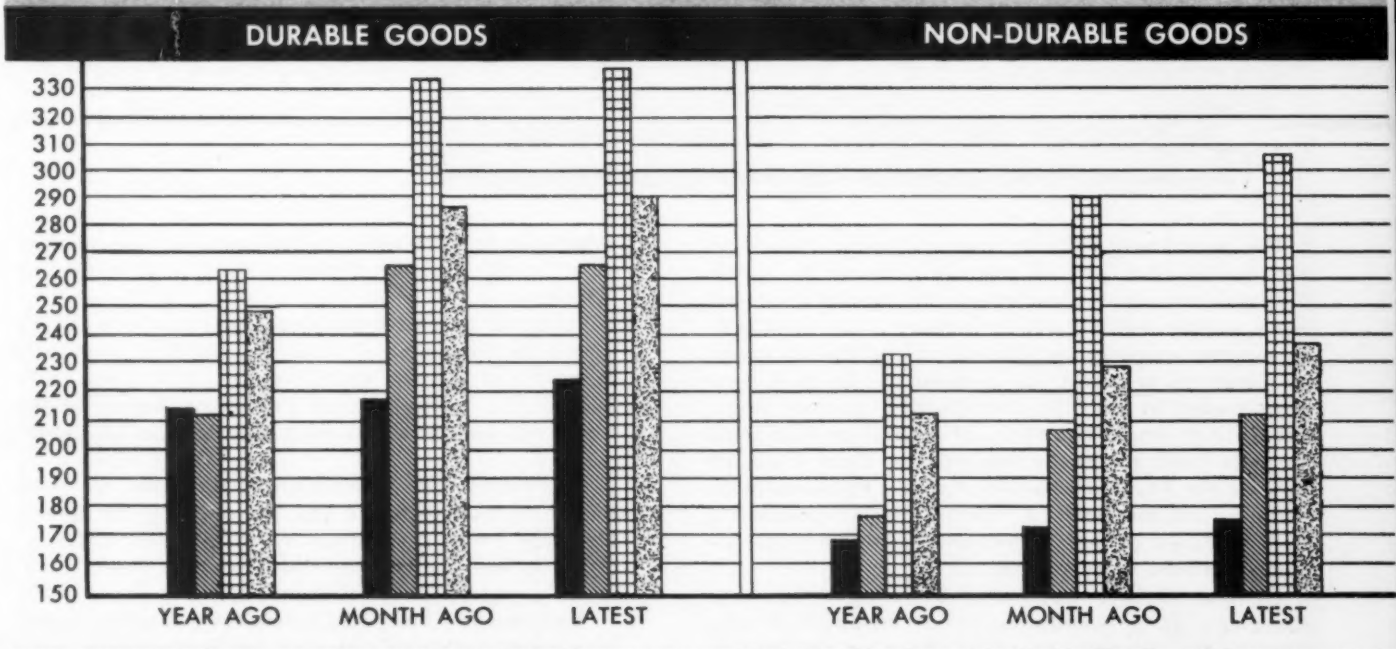
MANUFACTURERS' INVENTORIES, SHIPMENTS AND NEW ORDERS

	1946	1947					
	October	May	June	July	August	September	October
New orders, index, total† ..... avg. month 1939 = 100	228	235	245	230	231	257	257
Durable goods industries ..... do	248	256	271	260	260	287	290
Iron and steel and their products ..... do	267	273	304	271	285	309	304
Machinery, including electrical ..... do	318	294	315	328	304	337	345
Other durable goods ..... do	173	209	202	194	199	225	
Nondurable goods industries ..... do	215	222	230	213	213	238	236
Shipments, index, total† ..... do	244	283	292	271	282	313	318
Durable goods industries ..... do	262	313	323	287	301	332	338
Automobiles and equipment ..... do	217	258	280	264	252	296	301
Iron and steel and their products ..... do	228	265	274	251	271	294	303
Machinery, including electrical ..... do	287	368	395	340	351	392	391
Nonferrous metals and products ..... do	289	365	349	291	311	335	352
Transportation equipment (exc. autos) ..... do	506	600	669	496	497	518	513
Other durable goods industries ..... do	263	286	268	259	289	316	
Nondurable goods industries ..... do	231	262	271	260	269	300	305
Chemicals and allied products ..... do	224	265	265	252	256	295	296
Food and kindred products ..... do	248	282	298	292	294	332	338
Paper and allied products ..... do	225	273	277	250	266	279	287
Products of petroleum and coal ..... do	203	252	263	263	266	280	280
Rubber products ..... do	333	300	301	289	300	N.A.	
Textile-mill products ..... do	217	199	216	188	205	235	234
Other nondurable goods industries ..... do	221	263	265	256	271	301	
Inventories:							
Index, total ..... do	197	226	228	228	231	234	236
Durable goods industries ..... do	211	251	254	256	259	263	264
Automobiles and equipment ..... do	263	314	321	320	327	331	329
Iron and steel and their products ..... do	137	150	153	157	160	165	164
Machinery, including electrical† ..... do	276	334	339	341	343	345	350
Nonferrous metals and products* ..... do	167	186	186	191	191	193	190
Transportation equipment (exc. autos) ..... do	739	959	966	970	990	1019	1017
Other durable goods industries† ..... do	144	172	172	171	171	174	
Nondurable goods ..... do	184	204	205	204	207	208	211
Chemicals and allied products ..... do	180	228	227	225	223	219	217
Food and kindred products ..... do	195	199	194	196	209	214	219
Paper and allied products ..... do	183	206	218	229	239	245	246
Petroleum refining ..... do	132	142	145	148	152	157	157
Rubber products ..... do	212	282	291	272	262	N.A.	
Textile-mill products ..... do	174	189	186	186	185	185	185
Other nondurable goods industries† ..... do	200	222	228	222	218	217	

Source — Department of Commerce

N.A. — Not Avaliable

Inventories, Shipments and New Orders Compared With Industrial Production



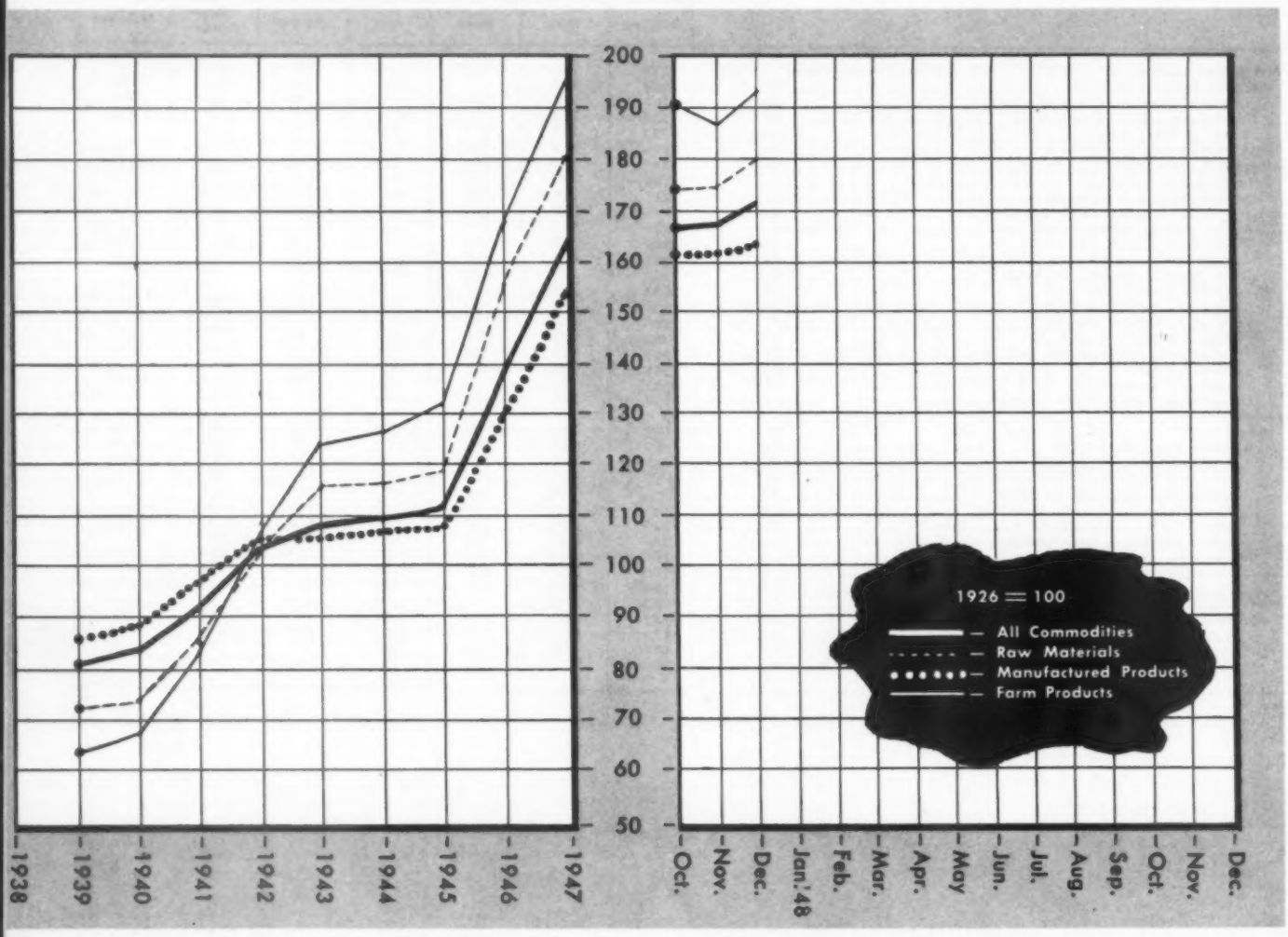
Industrial Production, Federal Reserve Index

Shipments (Department of Commerce)

Inventories (Department of Commerce)

New Orders (Department of Commerce)

The Price Picture



Straws in the Trade Wind

The Department of Commerce will begin a study of the steel situation with an attempt to gauge the future demand for steel by estimating the future needs of every major steel consuming industry . . . A joint U.S. Government-industry fact-finding committee will leave for Germany to assess the amounts of iron and steel scrap owned by the U.S. Army there . . . Hudson Motor Car Co. has leased two-thirds of the former Shenango tin plate plant of the Carnegie-Illinois Steel Corp. at New Castle, Pa. to produce steel sheets for automobile bodies . . . In the past 12 months 15 steel producers have disposed of their plants and assets to manufacturing concerns or syndicates.

General Electric Apparatus Department has announced a 20% limitation on price increases, if any, allowing the company to adjust prices on new orders to those in effect at time of shipment, within that ceiling . . . Westinghouse has stated that sales of heavy apparatus have reverted to the "price at time of shipment" policy instead of the no fixed price policy set last May.

Technical processes developed during the war now permit the production of aluminum electrical wire equal in quality to copper, according to E.W. Renfree, U.S. Rubber Co. . . . He predicts that many homes of the future will be wired with aluminum instead of copper wire.

A conference in January to draw up new contracts on major manufacturers has been set by the United Electrical Radio & Machine Workers Union (CIO) . . . Other unions are expected to announce their "third-round" wage increase demands shortly.

The Atlantic Coast Oil Conference has warned government and state officials that the Northeastern states face a serious emergency this winter unless "prompt industry action on oil products rationing is taken".

WHAT PERCENTAGE GAIN OR LOSS?

● *By W. F. Schaphorst*

Here's a simple chart that will save time in figuring percentage changes

PURCHASING Agents are frequently called upon to figure gains or losses, price increases or decreases, changes in rates of use, inventory valuations, or a score of other practical variables, in terms of the percentage of change. For their own use, as well as for reports to management and other departments, it is often advantageous to make such a check, even though the process is a time consuming one as ordinarily performed. Here is a chart that gives the answers without any irksome longhand figuring. It is a simple adaptation of the logarithmic scale used in many graphic or chart presentations. All you need is a ruler to lay across the scale to find the point of intersection. Subtractions, multiplications, and divisions are eliminated.

The chart is usable in a great many ways that will suggest themselves to you as you go along. Let us apply it to a typical problem as follows:

"A" is the price you formerly paid for a given product used by your company.

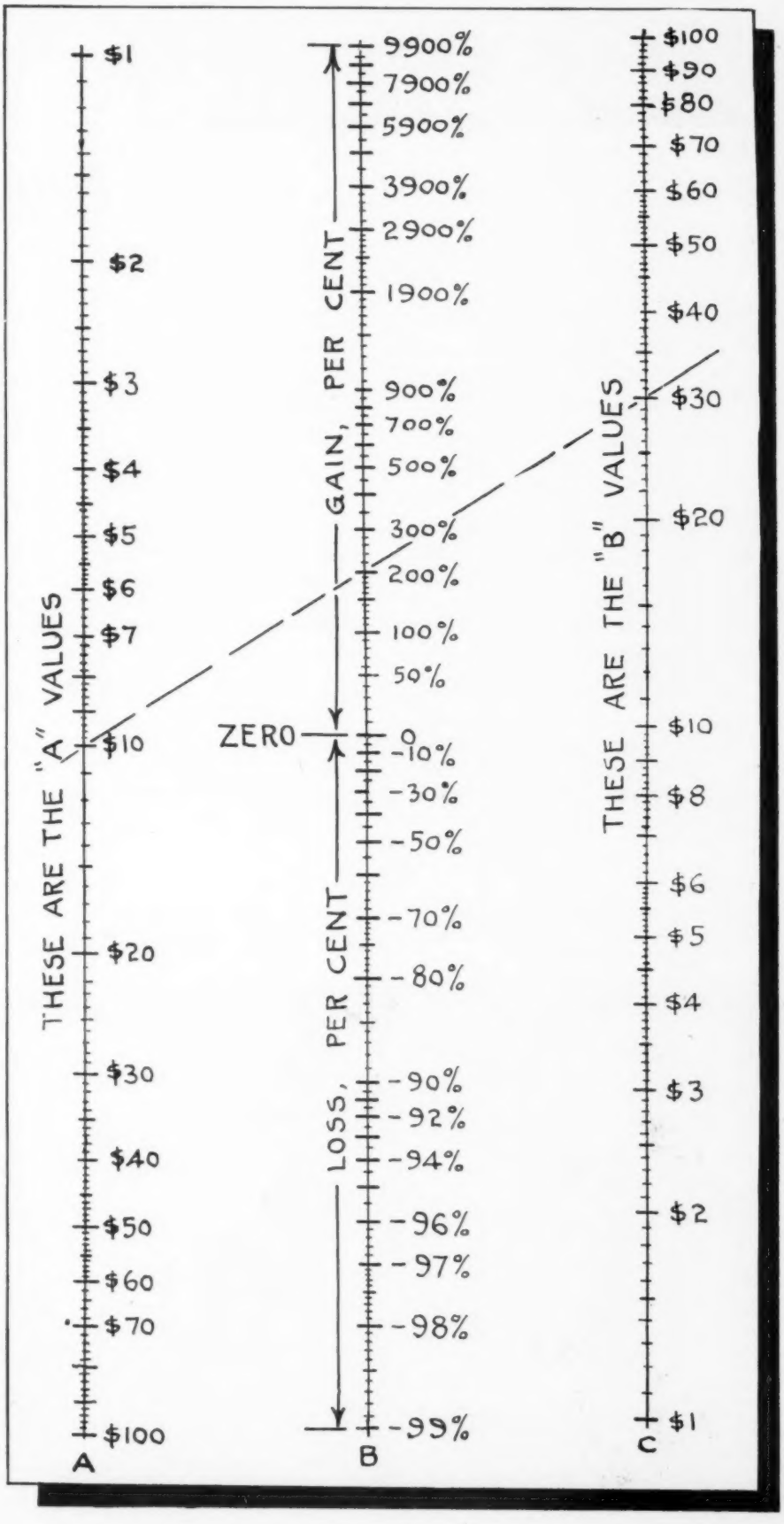
"B" is the price you now pay for the same article.

Suppose A is $10, and B is $30. Find the "A" value on the left hand scale, and the "B" value on the right hand scale; connect the two with a straight line as indicated on the chart. The line crosses the center scale at 200%, and that's your answer.

You could do that one in your head. But suppose A is $6.20 and B is $21.00. Put the ruler across the chart; it crosses the center scale at just about 240%. To get the answer by longhand figuring, you would subtract $6.20 from $21 to find the difference ($14.80); then divide $14.80 by $6.20 and point off two spaces to get it in percentage form. The answer is 238.71%. Close enough?

If the cross line intersects the center scale below the zero point, you have a loss instead of a gain. The quantities below the zero mark are therefore minus quantities. You formerly paid $15 for an item, and now pay $7.50. The cross line still slopes upward, but it intersects the center scale at—50%. Correct.

(*Please turn to page* 296)



SAMPLE ROOM FOR SUPPLIERS

Quartermaster Corps uses modern merchandising technique to demonstrate the wide range of its requirements and to assist potential suppliers

A SIGNIFICANT forward step in the Army's industrial mobilization program is marked by the opening of a new Sample Display Room in connection with the New York Quartermaster Purchasing Office. Located on the ground floor of the building at 111 East 16th Street, New York City, which houses the Army-Navy Purchasing Office and is the focal point for hundreds of suppliers who furnish millions of dollars' worth of products annually for both branches of the service, the display furnishes practical and helpful information on all sorts of materials and equipment purchased through this office.

The exhibit contains actual specimens of all sorts of uniforms and equipment made to the official specifications. Copies of the applicable specifications are also available, and in several instances are correlated in detail with the sample of the finished product. Current statements of requirements and invitations to bid are posted in the exhibit room.

A widely diversified range of items is on display, including complete issues of clothing for the various branches; arctic and tropical equipment, including experimental features now being developed; woolens and cottons; demonstrating the production, testing and inspection of clothing purchased for the services; footwear of all kinds, including arctic, jungle, and ski boots, combat shoes, and footwear worn by the armies of allied and enemy countries; general supplies such as dyes, insecticides, finger printing equipment, plastic tapes and other chemical, paper, and forest products

Col. Grice: "*Successful procurement depends on understanding and cooperation.*"

Gen. Middleswart inspects the research project on the use of fibrous glass linings in clothing to protect against extremes of temperature.

items; decorations; musical instruments; and subsistence items of various sorts, showing methods of canning and packaging.

A section devoted to Quartermaster research and development activities illustrates the extensive experiments being conducted in connection with water-repellent materials, fungi on articles of clothing, methods of preventing shrinkage of woolen goods, and the use of fibrous glass for insulation linings. The display room will be maintained on a current basis, with frequent changes in content as changes and additions are made in the purchase list. Specific provision has been made for items to be handled and examined by interested representatives of industrial concerns that are present or potential suppliers.

The facilities will also be utilized for the training of military and civilian personnel attached to the procurement office, and will be available for the training of Quartermaster Corps reserve officers within the New York Metropolitan area. They will be used further in cooperation with research and industrial programs outside the New York installation, as well as for purposes of reference relating to procurement activities in general.

It is proposed that similar display rooms will be developed at other locations throughout the country, which will be of great value in connection with Quartermaster Industrial Mobilization Offices to insure prompt production and distribution of essential items in the event of a national emergency. In such displays, priority is given to critical Quartermaster supplies and equipment that can be produced most effectively by industrial facilities within their respective districts. Duplications of facilities or items will be held to the minimum.

The formal opening of the New York Display Room took place on November 21st, with a buffet luncheon and a brief program in which statements were made by Col. L. O. Grice, Commanding Officer of the New York Quartermaster Purchasing Office; Col. Charles F. H. Johnson, President of Botany Worsted Mills; Kellogg G. Birdseye, newly elected President of the Quartermaster Association; Brigadier General William H. Middleswart, Chief of the Military Planning Division; and Major General Thomas B. Larkin, the Quartermaster General.

In opening the meeting, Colonel Grice explained that the Sample Display Room had been developed in response to a long felt need "to demonstrate what the military services require to contractors who undertake the responsibility of producing and supplying items to meet those requirements."

General Larkin declared that coordinated procurement such as is in operation at the New York office, while a first step in the unification of the armed forces, was established well in advance of the passage of the Unification Act by Congress. The Sample Display Room, he stated, is dedicated to the common objective of the Army, Navy, and Industry, to procure what is needed for the armed forces in the quantity, quality, and within the time limits required. "I hope we have no future wars," he said, "but if we do, there will be little time to prepare and we will have to make use of what items had been developed in time of peace."

General Middleswart pointed out that the Quartermaster Corps spent $20 billion for supplies, food, and equipment during World War II, having significant contracts with 27,000 firms to carry out this program. Discussing the importance of the Quartermaster Corps industrial mobilization plans, he said that a goal of two years has been set for the completion of the program, which will map potential sources of supply contemplating the utilization of 10,000 plants.

Mr. Birdseye reported that industry groups representing all phases of Quartermaster Corps activities and requirements have been established on a geographic basis, coordinated with the district offices of the Industrial Mobilization Planning Division. The Quartermaster Association provides the means and the organization by which the Army may tell industry what it needs, and industry may tell how it thinks such needs may be satisfied most effectively.

W. Ray Bell, President of the Cotton Textile Merchants of New York, and H. C. Hoffman, General Manager of Reeves Brothers, meet Quartermaster representatives in front of the textile exhibit in the Sample Display Room.

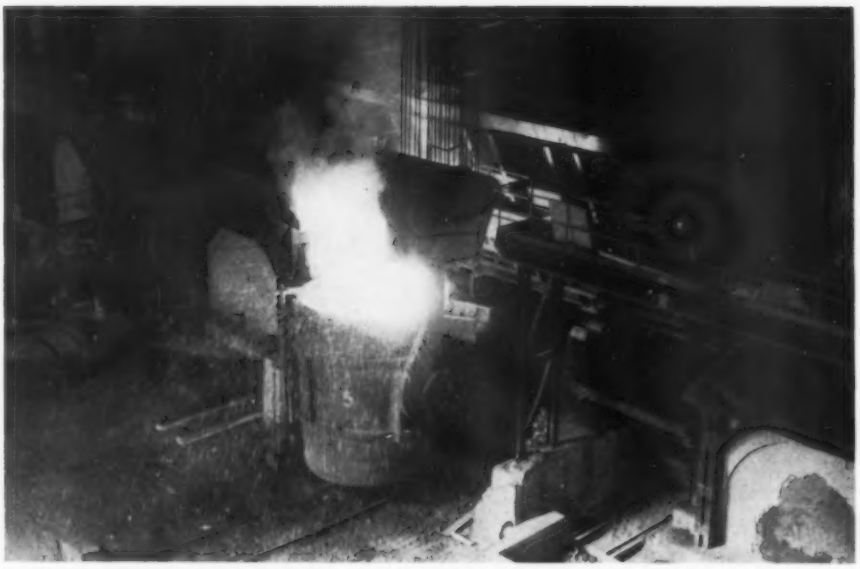
Gen. Larkin: "*If we should have another war, there will be little time to prepare.*"

1948 STEEL PRODUCTION SHOULD TOP 1947 OUTPUT

Billion dollar expansion program provides for greater tonnage of virtually all types of steel

●

By Walter S. Tower
President
American Iron and Steel Institute



IN 1947 the industrial economy of the United States was strengthened by the production of more than 84,000 tons of steel, a tonnage greater than ever made before in a peacetime year.

Steel production in 1948 should equal or exceed the output of 1947 assuming that existing and additional steel capacity can be operated without interruptions from work stoppages or strikes and without shortages of raw materials of the proper quality. The total of domestic and foreign demands is expected to remain heavy.

The supply of certain types of steel is still less than current abnormal demand despite the industry's prodigious feat in 1947. The principal reason for continued inability to meet every demand for steel has been the loss of more than 18,000,000 tons since the end of the war as the result of strikes and work stoppages.

At no time during 1947 could operations for the whole industry be pushed to 100% of capacity, although such a rate of operation was warranted in view of the high demand for steel. The deficiency was caused by a number of factors. The poor quality and short supply of scrap is one important reason. Total scrap stocks at one time during 1947 were lower than at any other time since 1939. Another reason is supply and quality of coal. Output from the industry's blast furnaces has been cut 8 to 10% by inadequate supplies of good grades of coke.

Steel production in 1948 should equal or exceed the output of 1947, assuming that existing and additional steel capacity can be operated without interruptions from work stoppages or strikes and without shortages of raw materials of the proper quality. The total of domestic and foreign demands is expected to remain heavy.

In 1948, steel companies will have the benefit of some of the new producing facilities which have been under construction for a year or more as a part of steel's one-billion dollar expansion program, undertaken in accordance with the companies' long established policy of meeting whatever demand exists for their products.

The greatest possible deterrent to larger output may be insufficient quantities of good quality scrap. It is impossible to say precisely when a balance between supply and demand for all types of steel will be reached. It must inevitably come, since the current scale of demand must be regarded as abnormal and temporary. If a balance is not actually reached in 1948, certainly the expected high production of the year will bring it close.

Nearly every major peacetime outlet for steel received more steel in 1947 than in 1940, the earliest year for which comparable data are available. The tonnages going to some of the major outlets are sharply higher than in that year. Steel is being supplied to more manufacturing firms, large and small, than ever before in history.

For example, jobbers, dealers and distributors, who furnish steel in small quantities to thousands of small manufacturing plants or to oil companies, builders, contractors and others, received a total of approximately 3,800,000 tons more steel in 1947 than in 1940. Shipments of steel to the automotive industry in 1947 have been at an annual rate of 1,810,000 tons above 1940. Sheet and strip shipments to the automotive industry were at the rate of 978,000 tons above 1940.

Jobbers, dealers and distributors, which supply to so-called small businesses a large part of their steel requirements, received sheet and strip in 1947 at the rate of 341,000 tons more than in 1940.

Although the pattern of distribution of sheet and strip shipments among market groups in 1947 roughly follows the 1940 pattern, there are some variations in the percentage of the total shipped to various markets.

Construction is receiving 12.3 per cent of current sheet and strip shipments as against 6.9% in 1940;

(*Please turn to page* 302)

Buyers and shippers are finding economies in the greater use of

INLAND WATERWAYS

Cargo handling equipment at the river port docks is being modernized and improved.

Nature's first highways — the rivers — are regaining an important place in the nation's transportation network; here are some facts about rates and routes that you should know

● ***By William Goettler***

INCREASES in freight rates, along with a buyers' market "around the corner," are causing more and more purchasing agents and traffic managers to search out economies in transportation as well as the lowest price of supplies.

Current confusion in rates has tended to increase slightly the 20% differential between rail rates and port-to-port waterway rates. This differential, agreed to by the railroads and barge lines, applies to barge-rail, rail-barge, and rail-barge-rail hauls. It does not apply where the entire haul, except for truck liaison, is by the waterways.

However temporary this wider spread in rates, it has turned attention to the increased tonnages being transported on the vast Inland Waterways System.

Ton-miles of freight carried on this system rose to nearly 21 billions in 1944 from less than six billions in 1934. The 1944 figure has been estimated to be nearly equal to that of trucks, and one-twentieth of the railroad total.

After a drop in the 1945 season, tonnages hauled on the waterways again increased in 1946. In 1947, chiefly because of oil shipments, they are expected to exceed all records.

The system of locks and dams in the Upper Mississippi to the Twin Cities, the Illinois River to Chicago, the Ohio River to Pittsburgh, and in the Tennessee, together with channel improvements in the Lower Mississippi, the Warrior, and Missouri Rivers, compose the most extensive and modern waterway system in the world.

Canalization of the Rhine, in Germany, is on a small scale by comparison. Even Dutch engineers

Channel improvements and modern radar equipment have made river transportation largely independent of weather conditions that formerly delayed such traffic.

found the magnitude and engineering refinements of the American system far beyond their own.

Revived Interest

Purchasing agents, it seems, have failed to take full advantage of the waterways. Price ceilings and rationing, along with the urgent need for supplies, eliminated thought of the waterways in many lines of packaged freight. Hauls of bulk or raw materials continued by barge, but much of the packaged business went back to the rails.

Because of truck and fast rail transportation to major manufacturing centers, the tendency was to let shippers do the warehousing. In order to cut down inventories as a safeguard against a drop in prices, stock clerks in many lines carefully watched supplies on hand, and ordered only when these were needed.

Furthermore, the continued shortages of many supplies and the stress on production rather than cost in many industries, have caused purchasing agents, at least until recently, to devote little attention to economies in transportation charges.

Now, however, many purchasing agents are asking: "Just what is happening on the waterways? What companies operate there? Where must we be located in order to benefit from the service? What is the outlook for future benefits?"

Low waterway rates to an area can make or break competition. Prior to completion of the Illinois Waterway, Chicago area steel mills were being priced out of the steadily growing markets for steel products in the South. Barge line transportation on the Ohio enabled Pittsburgh mills, 500 miles farther away from these markets, to undersell Chicago manufacturers.

Waterway rates have an advantage particularly in shipments of bulk cargoes of coal, sulphur, grain, sand, gravel, petroleum products, scrap iron, steel and various chemicals. Shippers of carload or less-than-carload lots have benefited to a lesser extent. Because of handling costs, barge lines offer a smaller saving in baled, crated, or boxed goods in either large or small lots.

Extent of Water Routes

Together with numerous private carriers which specialize in handling bulk materials in barge-load lots anywhere in the Inland Waterways System, there is the Federal Barge Lines that was set up by the federal government to pioneer methods and equipment, and to explore the feasibility of new service.

The Inland Waterways Corporation, as the latter is also called, in addition to handling bulk commodities moved in barge-load lots, carries packaged non-perishable goods in carload or less-than-carload lots. It operates on the Mississippi, Warrior, Illinois, and Missouri Rivers. Regular service on the Missouri extends to Kansas City, and experimental service to Omaha.

Among the privately owned lines operating on the Ohio as common carriers are the Union Barge Lines, the American Barge Lines, and the Mississippi Valley Barge Lines.

On the Illinois are the Central Barge Lines, the John I. Hay Company, the Ohio River Company, and the A. L. Mechling Barge Lines.

Those on the Upper Mississippi include the American Barge Lines, and the Mid-continental Barge Lines. Operating on the Gulf Intercoastal Canal, extending from Corpus Christi, Texas, to Florida, are the American Barge Lines, the Coyle Lines, and the River Terminals Corporation.

The Arrow Transportation Company and the Central Barge Lines are authorized to operate on the Tennessee. Nearly all of the above have rights on the Lower Mississippi. Although specializing in bulk commodities, some of the privately owned lines, especially on the Ohio, handle packaged freight.

Economies and Limitations

Following are some of the general rules for determining where and where not waterway transportation can be an economy in delivery costs of raw materials and other supplies.

The larger the proportion of mileage by water to that by rail, the greater will be the saving. For example, coal from Illinois mines is hauled in hopper cars, and by means of conveyor belts dumped into barges for shipment to the Twin cities.

As evidenced by huge coal tonnages on this route, the economy is considerable. On the other hand, under current rate structures, if the coal must be reloaded to rail cars for shipment to Butte, Montana, the saving is largely dissipated by cost of the transfer.

Also, it is profitable apparently to ship canned goods from Central Wisconsin to Chicago, and then into the South by way of the Illinois-Mississippi Waterway. Where trucks bring the freight to the terminal at Chicago and pick it up at its destination, the differential does not apply. Barge lines last summer were bidding for business at port-to-port rates one-half those by rail.

Savings on many commodities may be obtained to some interior points in the Southwest, to which there are barge-rail rates. Cities in the Southeast, however, are out of the zone of barge-rail rates.

Increases in steamship rates from the Gulf ports through the Panama Canal to the West Coast have for the time being largely eliminated all

water shipments to the West Coast. Large tonnages were carried on this route before the war, and officials of various barge lines expect that it will regain importance.

Only when rail mileage is nearly equal or exceeds that on the waterways in a haul, does the economy become negligible. Bulk must not be broken more than twice.

Effect on Plant Location

Because of the continually changing rate picture and the varying flow of traffic, it is impossible to give exact rates in this discussion.

Joint rates extend to states and areas adjacent to the waterways. Until transportation advantages are extended in joint rates, industries outside of this territory can hope to benefit little by using barge lines. They can attain waterway shipping advantages only by moving plants to locations on or near the rivers. Deere and Company, which has located a new tractor manufacturing branch on a site adjacent to the river at Dubuque, Iowa, is one of many examples.

"We aren't looking for 50-cents-on-the-dollar government plants, but for sites along the waterways," another large manufacturer said.

The shipper may take advantage of waterways when transit time is not of primary importance. The time from New Orleans to St. Louis is fifteen days upstream, and five days down; that from St. Louis to Chicago, four days up and two and one-half days downstream; that from St. Louis to the Twin cities, nine days upstream and five downstream. Time on the Ohio River to Pittsburgh averages about twelve days upstream, and ten days down.

This handicap of longer transit time will become less important, of course, when commodities and manufactured goods come into ample supply, and when prices grow competitive. Slower transportation does have an advantage in cases where it serves as warehousing.

Wherever shipments are trucked to the barge terminal and trucked away at the destination, the ODT regulations do not apply.

The minimum tonnage accepted naturally varies in different commodities. Forty thousand pounds, for example, is the minimum shipment of canned goods accepted by the Federal Barge Lines.

Minimum Loads

Although most carriers prefer shipments of at least 250 or 500 tons to fill a small barge, almost anything from toothpicks to threshing machines may be shipped by waterways. Before the war the Federal Barge Lines handled two or three deck shipments of automobiles. The Commercial Barge Lines specialized in automobile shipments.

Another rule is that the higher the rates on any commodity, the greater the saving in waterway transportation. Low rates on any class of items or materials, on the other hand, mean a narrower dollars-and-cents differential.

In general, the barge lines obtain a greater proportion of shipping in periods of severe price competition, than during the business booms. Back in the early 30's when manufacturers sold merchandise practically at cost in order to keep their plants in operation, the savings obtained in waterway shipping often meant the difference between breaking even and making a small profit.

On account of packaging deficiencies, shippers have shied away from waterway transportation because of the extra handling and greater damage that might be possible. Barge line officials, however, declare that water transportation eliminates many jolts and actually prevents damage.

Methods of Handling

In order to cut costs of handling packaged freight and to speed up transfers, several of the lines plan to install endless belts, power-lift trucks, four-wheel truck trailers, high speed diesel operated cranes, water level docks, facilities for faster turning of barges, and other terminal equipment. Municipal governments at many ports already supply much of this equipment.

Also, several lines currently are experimenting with steel containers that have a 277-cubic-foot or five-ton capacity. These can be sealed and locked throughout transit.

The containers are loaded on a flatcar by the shipper himself anywhere within switching distance of the waterway terminal. Large cranes at the terminal lower the containers into the barge. They are reloaded to flatcars at the receiving terminal, and switched to the point of destination. As all handling is eliminated, the containers promise to solve some of the transfer problems of barge lines and may extend the waterway

The necessity of passing through locks limits the length of tows and adds to the time in transit.

Bulk materials such as coal have accounted for the greatest tonnage moved on the Inland Waterways.

advantage in handling of packaged freight.

At least two of the privately owned lines have under consideration a service in which loaded trailers would be pulled on barges, and the tractors detached. Another set of tractors at the receiving terminal would distribute the freight. Because of the overcrowded conditions of highways and the consequent accident hazards, this plan appears to have merit. Several railroads are experimenting with a similar system in which trailers are hauled on flat cars.

Faster Schedules

In their drive for new business, the barge lines plan greater speed in transit. One step toward this goal is further "integration." Tow boats owned by various companies at first took their own routes and their own cargoes. There was no extensive interchange of barges like that of box cars by railroads. A beginning has now been made in this direction, and the carriers are certain to extend cooperation not only for speed, but for greatest possible use of equipment.

Fog has caused delays in waterway traffic since the days of Mark Twain. However, the Ashland Oil and Refining Company and the Mississippi Valley Barge Lines have experimentally proved the effectiveness of radar in navigating winding river channels during fog and other adverse weather conditions. The companies announce that radar equipment will be installed on other towboats of their fleets.

Experimental models of 600-foot-long tows are being built at the University of Michigan. Square sterns of barges in these models are locked together, so that only the lead barge "cuts" water. Elimination of much water resistance between present barges in tows, along with more powerful towboats, is expected to result in speeds of at least 10 miles on hour.

Lockmen are cooperating with barge line operators in order to speed up lockages. Even minutes are considered. Time studies are under way on the Ohio to deduct 10 minutes from single lockages, and 20 minutes from double lockages. Time saved at any one lock is incidental, but when it is multiplied by seven lockages on the Illinois Waterway, 53 on the Ohio, and 25 on the Upper Mississippi, the saving becomes important.

Steam powered "stern-wheelers" are inefficient, and the trend in tow boats follows that of railroads toward diesel power. Greater speed and efficiency are expected.

A recently developed device to gain power and speed is the Kort-nozzle. This is a shroud enclosing the propeller to counteract the centrifugal force. When the water is forced directly backward, 20% more power is obtained.

Channel Improvements

One of the chief limiting factors for service and economy at present is the necessity of breaking tows of more than eight barges, or more than 600 feet in length, in order to make lockages.

So that larger tows can be handled with less delay, government engineers are studying the feasibility of lengthening lock chambers to 1,000 or 1,200 feet. It is understood that the cost would be moderate.

Engineers also have made surveys in regard to practicality of deepening channels from nine to twelve feet. Since the Ohio, Illinois, and Upper Mississippi flow within relatively high banks, water might be backed up by dams to afford the deeper channel. However, since the Lower Mississippi for great distances has practically no banks, it seems impractical to dam this section of the river. Dikes would have to be constructed for many miles, and the cost, it is believed, would be prohibitive.

Weather No Handicap

Except in the Upper Mississippi, which usually is frozen over for two months, ice is not too great a handicap. Even on the Illinois Waterway, ice-breakers have been able to keep open channels, and shipments have rarely been behind more than a week in the most severe weather.

Whether or not they can use the Inland Waterway System at present, purchasing agents and traffic managers will do well to watch developments in barge line traffic.

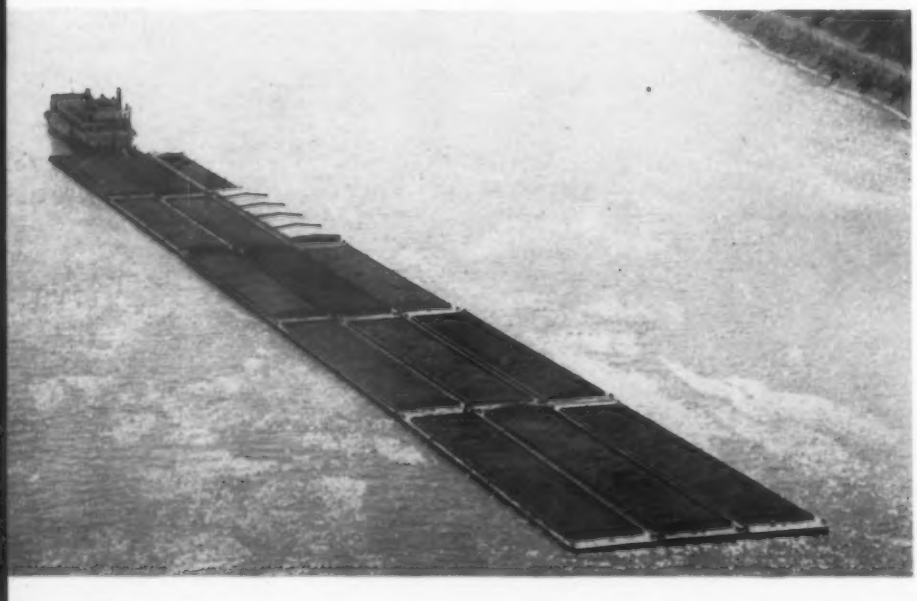
Tonnages have increased despite the fact that many shippers were lost because of wartime conditions. There is indication that they are returning to the waterways in shipment of many classes of manufactured goods and commodities.

Among these are canned foods, burlap, sisal fibre, and—despite the continued shortages—steel. Even shipments of packaged goods showed a notable increase during September.

Through the addition of joint rates, the benefits of waterway transportation may be obtained further and further in the interior. Purchasing agents and traffic managers may encourage their industrial associations to check rates.

The barge lines are newcomers comparatively in the freight carrier field. Their full possibilities are yet to be explored.

Approaching Burlington, Iowa, the Central Barge Company's Steamer *Alexander Mackenzie* moves a tow of fifteen loaded barges. The cargo consists of 1,167 tons of superphosphate loaded at Sheffield, Alabama, and 17,053 tons of coal loaded at Alton, Illinois, from the coal fields of Southern Illinois and Western Kentucky. The barges are consigned to points on the Upper Mississippi River, from Genoa, Wisconsin, to Minneapolis, Minnesota.



PURCHASING WITH A PURPOSE

Twelve principles of efficiency that will improve purchasing performance and contribute to profitable company operation

By Arthur G. Pearson

Director of Purchases
American Meat Institute
Chicago

Address before the Cleveland Purchasing Agents Association, November 20, 1947.

TO PURCHASE with a purpose, it is necessary to look objectively and constructively at the purchasing work we do and the part purchasing has in a business organization.

If we are to be honest with ourselves, we must recognize that purchasing today is organized and operates at many levels in business. In some organizations, we find purchasing departments that are nothing more than errand boys, while in other organizations the purchasing departments consider their work an executive responsibility.

The basic reason for this great difference in the concept of the purchasing department's responsibility lies more with the purchasing department than it does with management. We find many instances today where management is insisting that the purchasing department carry its share of executive responsibility. Business leaders have no patience with the purchasing agent or purchasing department that does only the work that any errand boy might do.

Executive Purchasing

The errand boy type of purchasing department is composed of people who make a great effort to meticulously handle requisitions as they are sent to them by others. To them, their job is no greater than this simple operation of fetching what is wanted by someone else. On the other hand, the executive purchasing agent, the man who daily contributes more than a clerical operation to his company bears constantly in mind that his job is that of a specialist in vendor relations. It is his job to know what is available in the markets of the world . . . what items, what machines, and what types of equipment are available that will enable his company to produce products having more value at a lower unit cost.

This purchasing agent looks at the requirements for materials and supplies of each department in his company with the thought in mind of consolidating and improving the quantity of goods purchased. He studies the reason in back of each purchase and attempts to decide the timing so that materials can be obtained at a lower unit cost to his organization. To such a buyer, the purchase of coal is not just a matter of obtaining so many tons of any coal, but rather a matter of B.T.U.'s delivered to produce the heat required for a given operation. Problems of material handling, problems of delivery and unit costs of delivery come under his consideration. It is not just a matter of buying any and every item that can be had for the smallest amount of money, but rather buying the materials because they will give an overall low unit cost to the finished product. Proper packaging will reduce delivery costs. The use of wetting agents can speed up an operation. Expensive hydraulic presses to stamp out parts will reduce the unit costs of those parts.

All of this executive activity on the part of the purchasing agent leads to increased efficiency that gives more value for less money—whether it is saving the salesman's time and enabling him to be more efficient through good salesmanship or whether it applies to purchasing of raw materials and supplies. The contribution of the purchasing agent today, the man who is a real specialist in vendor relations, is to add efficiency to the work of his own department and the organization for whom he works. This also applies as well to the vendors with whom he deals.

Wanted: Better Buying

The errand boy type of purchasing agent does a job of getting materials, but the day when availability is the only factor that counts in purchasing has passed or is passing, and the purchasing agent who lives up to the true responsibility of his job realizes that there are many other factors such as value, proper quality, reliability, and service, that must be considered in addition to

availability. The errand boy purchasing agent is fast becoming a thing of the past and he is being replaced by men of the executive type as management seeks purchasing agents that can carry their share of responsibility.

During the past year, George Aljian, past president of the National Association of Purchasing Agents, received many requests from leaders in industry asking what can be done to furnish more men capable of carrying their share of the management responsibility of vendor relations. Years ago, when purchasing departments were first developed, the errand boy type of purchasing was a natural step in the development of organized procurement. Today, those men who have seen the possibilities of the greater concept of purchasing that is involved when we speak of purchasing agents as specialists in vendor relations, see that there is much more to purchasing than just fetching what someone else decides is needed. In this concept, the purchasing agent is quite as much a salesman as any salesman that calls on him. After he has found what is available and what will help his company, it is his responsibility to sell the other members of his organization on this new equipment or material.

In all of this, he contributes to the process of producing more value for less money, thereby placing his company in a better competitive position. A purchasing department dominated by this concept of having an executive responsibility—a purchasing department that is purchasing with a purpose—contributes to the overall success of this business.

Measuring Performance

The National Association of Purchasing Agents for years attempted to develop some means of measuring objectively the work of the purchasing department. This project has now been drawn to a conclusion because objective measurements cannot be used to measure the intangible values that the proficient purchasing department creates and contributes to a business. Purchasing from an organizational point of view is a staff function. It does not give orders to the other departments in the company, but rather is a source of ideas, suggestions, which the purchasing department in its specialized field is able to offer to the other departments of the company. It is in this capacity, as a specialist in procurement, that a purchasing agent contributes so much to his company.

The extent of this ability to do purchasing with a purpose can be judged by yourself if you are interested. There is probably no better way than to take the twelve principles of efficiency enumerated by Harrington Emerson in his outstanding study on that subject and evaluate your work and your purchasing department on its ability to measure up to these principles. It is Harrington Emerson's belief that any organization to be successful must make use of one or all of these principles. As we consider them briefly, you will be able to notice that by making use of only one or two of these principles some organizations have been extremely successful. Picture then, the success that will be attained by a purchasing department that practices to any great extent, all of the following principles.

Clearly Defined Objectives

The first and most important of the principles enumerated is that of having clearly defined ideals. Do you and the people who are working with you really know what they are trying to accomplish in the purchasing department? Do they know what the purchasing department can contribute to the success of the business as a whole? Do the people in the purchasing department have a clear conception of the work of the organization that employs them? Do they appreciate the basic reasons for doing their daily work? Many companies are now giving their employees booklets stating in very clear terms what the company's contribution is to our economic life and what the purchasing department's contribution is to the organization as a whole.

In the Army they called this "indoctrination." Some refer to this principle of having clearly defined ideals as simply understanding their job and understanding the relationship between their job and the next fellow's job. This enables the individual to have an appreciation of what he accomplishes from day to day and furnishes a psychological drive that makes the job more enjoyable and helps the individual to accomplish more, more efficiently.

Principle No. 2 is one that you all know, that of having common sense. Common sense is something that you are not born with or without, it isn't an ability you inherit; it must be developed in each employee that comes to work for you. Common sense is the result of combining knowledge with experience. Many people must be taught the art of taking first things first. Through experience, they are able to distinguish between short term operations and long term advantages in dealing with vendors. Common sense is based on the first principle of ideals plus an understanding of the individual job. This is then combined with competent counsel, which is the third principle of efficient organization and management.

Competent Counsel

In purchasing, what does competent counsel mean? Competent counsel may be considered under three headings. First, of course, are the men in your own organization—the people that you contact every day, people that use the things you buy. These people are specialists in their work, just as you are a specialist in vendor relations. They have much that is worthwhile to contribute in the way of knowledge and experience in using materials. Consult with them, work with them, equip yourself to do a better job by finding out what qualities they want in the materials which they requisition.

The second general source of competent counsel is the salesmen that call on you. Salesmen are the eyes of the purchasing department. It is through salesmen that a purchasing agent sees what is going on in the outside world. It is through salesmen that a purchasing agent can learn of new and improved materials, new and improved ways of doing things, and it is through salesmen that a purchasing agent is able to make good when somebody is on the spot and things have to be done in a hurry. A purchasing agent who discourages salesmen, keeps them waiting, or treats them poorly, might just as well destroy the sight in one of his eyes, because just as surely he is destroying his ability to see what is going on in the world about him. The old errand boy type of purchasing agent is well illustrated by the story of the purchasing agent of not so many years ago who had only one chair in his office for visitors. This chain was on the opposite side of the room and when the salesman attempted to pull this chair up to the purchasing agent's desk, he found it, much to his chagrain, nailed to the floor. Along with the courteous treatment of salesmen should be classified visits

to vendors' plants and salesrooms.

The third source of competent counsel comes from the National Association. This organization in the past 30 years has grown to an organization of more than 10,000 members stretching from coast to coast. The National Association has a code of ethics containing 10 principles and standards of purchasing procedure. The second principle of this code reads: "To be receptive to competent counsel from his colleagues without impairing the dignity and responsibility of his office." Here is how some of this counseling works:

The National Assocation of Purchasing Agents is made up of 10,000 members having 78 local organizations whose headquarters are in strategic industrial centers throughout the United States and Canada. The Chicago Association, for example, has more than 750 members. From fellow members, either at regular meetings or between meetings, purchasing agents have available a great deal of valuable information and help that helps them to do a better job. Through a weekly bulletin published by the National office, they are kept abreast of what is going on in the business and economic world. This information is presented in such a manner that all phases of thinking are considered. It is the individual member's job to carefully select from this information and form his own conclusions. The National Association of Purchasing Agents does not try to do your thinking for you, but they furnish you with an endless stream of material which will aid you in making accurate decisions. Special bulletins and studies are produced and furnished free of charge to members from time to time. A handbook of purchasing policies and procedures was developed and written for the exclusive use of members. These books, together with Lewis' *Industrial Purchasing* and two handbooks of commodity data sheets, give the purchasing agent a library of valuable materials.

However, the purchasing agents' best contacts come through the meetings each month and the contacts with other purchasing men doing similar work. In the Chicago Association, for example, there are 17 group organizations. Each group is made up of buyers having similar interests, such as the paper group, food processing group, foundry group, etc. As an example of how this works: A purchasing agent needed to buy a large quantity of mechanical rubber goods. Such material was purchased only occasionally and he wanted to find out quickly what the market situation was. A phone call to the purchasing agent of a large mechanical rubber goods concern brought him the information that the market was very likely to soften up and that a delay of even a few months in placing his orders might result in substantial savings. This purchasing agent, by getting competent counsel, delayed his purchases as long as possible, with a resultant saving to his company.

Discipline

The fourth principle is discipline. Discipline yourself to operate in accordance with the other 11 principles of efficient operation. Discipline yourself in the conduct of your office and the conduct of the people within your office. Discipline is probably the hardest principle of all to apply, but it pays off in the long run. Discipline yourself in maintaining a neat office—a place for everything and everything in its place, keep regular hours, and get reports in on time. We will mention more about discipline when we discuss other principles later.

Fair Dealing

The fifth principle is that of fair deal — a very important consideration — a fair deal to others, as well as to yourself. Play fair with yourself and do not attempt to accomplish more than you have time to accomplish. Be fair to your employees, be sure they understand what their work is and what they are expected to accomplish each day, no more, no less. Be fair with other departments in your organization, and be fair above all in your dealings with salesmen. A close adherence to the policy of fair dealing in your contacts with salesmen goes a long way to creating a feeling of fair dealing between yourself and your vendors.

Basic Records

The sixth principle is records—reliable, immediate, and adequate. In purchasing, perhaps more than in any other work, proper records are a "must"; and in purchasing, records must be reliable, up-to-date,

"To keep our correspondence in triplicate, Snodgrass, it isn't necessary to dictate the same letter to three stenographers."

and adequate for the purpose for which they are intended. Just to mention a few of these records, that you find in most purchasing departments. . . . Commodity records indicating where various orders have been placed, at what price, and, very important, the timing of purchases made in the past. You have a vendor record covering correspondence and information about your experience with the various vendors that you have been dealing with.

A third record is an adequate catalog file containing information about new sources and what is available at old sources of supply. There may be a record of reports on tests of materials, studies made, and standardization of commodities purchased. Another record that is very helpful is what some people call a "prospect file". This is maintained in the form of a commodity file but is used to hold literature and information received concerning new sources of supply or new products. Such a file answers a pertinent need in the purchasing department to retain and hold information that comes to the attention of the purchasing agent either through his contact with salesmen or through advertising which is constantly reaching the purchasing agent's desk. These are just a few of the basic records that can be maintained in the purchasing department.

Based on adequate records, one purchasing agent in the Midwest got together with his sales department and worked out a program that reduced their inventory of raw material. In nine months, an inventory that could have spelled disaster was reduced and balanced to a good minimum working inventory that no longer is a financial threat. Some organizations maintain records showing total orders issued, total purchases made, the average cost of issuing purchase orders per month.

Planned Programs

The seventh principle is dispatching. This is an interesting principle as applied to purchasing. It means getting the work started and finished on time. It means the purchasing department must look ahead and anticipate the work it is going to do during the year and set up a plan for getting the work done. Planning ahead is essential, rather than just waiting for the work to come in. In this connection, the purchasing department's familiarity with the company budget will enable them to look ahead to make purchases at the right time.

Under dispatching, the purchasing agent should consider setting up study schedules for each month requiring detailed studies to be made of the various commodities purchased by his organization. It is surprising how much additional research can be done by a buyer on some of the commodities that are bought from day to day. If these study schedules are set up as a planned program with definite studies to be made each month throughout the year, much additional information on commodities can be added to the department. If such studies are to be made, they should be started on schedule and finished on schedule. Dispatch also applies to handling of reports and scheduling of requisitions through the department. Proper dispatching eliminates the possibility of important work being overlooked.

Personnel Problems

The eighth principle was called by Harrison Emerson, standards and schedules. Today, this subject is called personnel. This is a specialized field, and where a personnel department is available they can take over the job of seeing that the right person is employed for the right job. However, in the interest of getting out work smoothly and efficiently, the purchasing agent should consider it part of his job to be sure that none of his people are working under a handicap. In other words, that square pegs are in square holes and round pegs are in round holes. There is nothing more cruel to an individual than to put him on a job that he is not capable of handling easily and adequately. You wouldn't hitch a race horse to a milk wagon to do a job of delivering milk, nor would you expect a dray horse to win a derby just because a jockey was mounted on him and he was entered in the race.

However, this very thing is being done every day in business. Just recently my attention was drawn to the case of a buyer who was transferred to accounting work for which she cared little. This did not get the accounting work done and a good buyer was lost to the organization. Some people, because of experience and training, are capable of doing certain types of work more efficiently than others. These natural abilities should be put to work. Sensible application of personnel principles, job analysis, and personnel rating result in a happy office that can efficiently turn out the work with a minimum of physical effort.

Standards

The ninth principle—standardized conditions—has long been recognized as a principle upon which the purchasing department builds its work. In maintenance supplies, larger supplies can be purchased, and inventories adequately maintained once the materials used have been standardized. Standardization of shipping cartons and material handling are just two examples. It is the purchasing department's job to sell increased standardization to the operating departments. This principle of standardized conditions ties in very closely with standardized operations. The two might well be considered under one heading.

The tenth principle is standardized operations. In a purchasing department, standardized procedures should be followed or the work would be hectic and completely lacking in productiveness. The purchasing department can do much to encourage standardization in other departments because as conditions are standardized in other departments, the requisitions for materials, labor and supplies will also tend to become more standardized with subsequent economies in buying.

The eleventh principle is written standard practice instructions. This principle emphasizes the summarizing of the ten other principles into written instructions. Many purchasing departments are writing out their procedures, stating in clear terms the ideas and purpose for which the department is functioning and including in these write-ups a study showing what each person is responsible for on each job. Such written standard practices clarify the responsibilities of each person in the department and help to build a smooth operating organization.

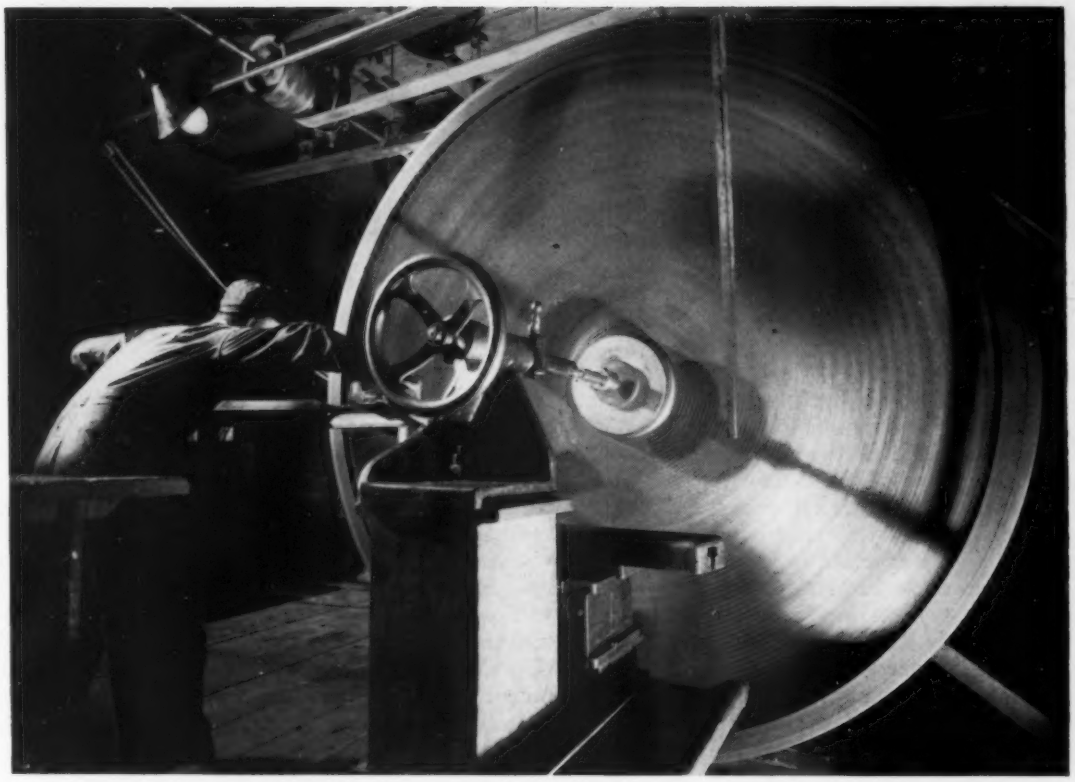
Rewards and Reports

The twelfth principle is that of an efficiency reward. Harrington Emerson's principles applied to your department will make the work of the department more productive, but they should be tied together and made effective by seeing that proper rewards are given to everybody deserving recognition.

The simplest type of a reward is paying adequate wages for adequate work. Previously, we have men-

(*Please turn to page* 299)

METAL SPINNING



(Photographs by courtesy of Milwaukee Metal Spinning Company, Gray Manufacturing Company, and E. W. Bliss Company)

Spinning a parabolic antenna from an expanded steel disc 102″ in diameter.

A forming technique that is midway between skilled hand craftsmanship and mechanized production offers many distinct advantages within rather limited fields of application

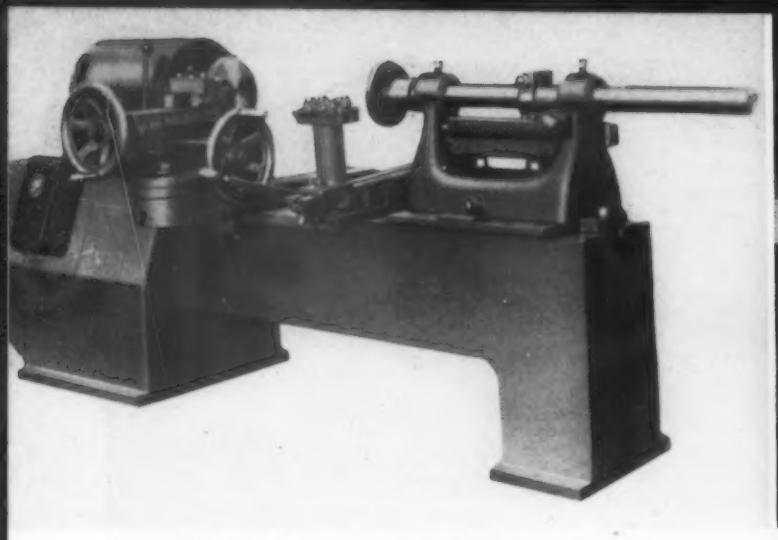
● ***By Benjamin Melnitsky***

MODERN industry depends for its efficiency on the newest machine tool developments such as automatic and semi-automatic production machines of incomporable complexity and of awe-inspiring capabilities. Shapers the size of a small bungalow, power presses five stories high, gigantic lathes designed to spin between their centers castings weighing many tons . . . these are all vital components of this country's advanced technological development. However, within this technology there is also room for old, tried-and-tested industrial machines and industrial fabrication methods. The craftsman, whose work is a step above the handcraft level, also has his place in modern industry. In the category of older methods operated by true craftsmen is the fabrication process called metal spinning.

From 1840, the time of its introduction in America, till but a few years ago, metal spinning was used almost exclusively for the fabrication of pewter coffee urns, silver dinner plates, ornamental chandeliers, jewelry, and similar high-cost commodities. Now, spinning lathes may be found in many modern plants on the same floor as the automatic lathes, punch presses, and other modern machine tools. Metal spinning is another example of a fabrication method neglected for years only to be resurrected during the war when the need for productive capacity was so acute as to demand the use of any and all metal working methods. During the war, skilled metal spinners whose life work had been concentrated on making quality, crafts objects suddenly found themselves working on airplane propeller heads, reflectors for military lighting equipment, and a host of other circular, cylindrical, and concentric objects for military and war plant use.

The renaissance which began during the war has continued in the present; it will undoubtedly continue into the future as well. Metal spinning has many unique and valuable attributes: many jobs can be done better, faster, and cheaper by this fabrication method.

Metal spinning, defined simply, is a deep-drawing process in which a sheet metal disc is cold worked



Lathe designed for secondary spinning operations

Lever-type spinning tool with roller tip and adjustable fulcrum to provide maximum pressure.

to a desired shape by being formed against a revolving chuck or spinning die which is the exact shape and dimension of the finished part. The process is basically the same as drawing metal by forcing it against a mold. The important difference is: in a punch press the drawing around the die is done at one time, whereas in spinning the drawing is done progressively from center of sheet to end. The spinning lathe is similar to a wood-working lathe, only larger and with greater power.

The metal disc may be aluminum, carbon steel, cast iron, silver, magnesium, stainless steel, nickel and nickel alloys, lead, tinplate, Monel, copper and copper alloys, Inconel . . . almost all metals can be worked, provided that correct spinning techniques are employed. For instance, copper, carbon steel, aluminum, and other soft, ductile metals can be spun without the application of heat; hard metals such as magnesium must be heated during the spinning operation. Of course, different metals require different methods of handling, different lathe speeds, different spinning tools different annealing practices, etc.; however, by judicious balancing of these various factors, most commonly-used engineering materials can be fabricated by metal spinning.

The metal disc is clamped in place between the lathe's spindle and the chuck. The chuck is either wood or metal depending on the material being fabricated. Soft metals, non-intricately designed parts, and small quantity jobs can be spun over inexpensive wood chucks. Alloy-steel or cast alloy-iron chucks are used for harder metals and where long production runs are contemplated.

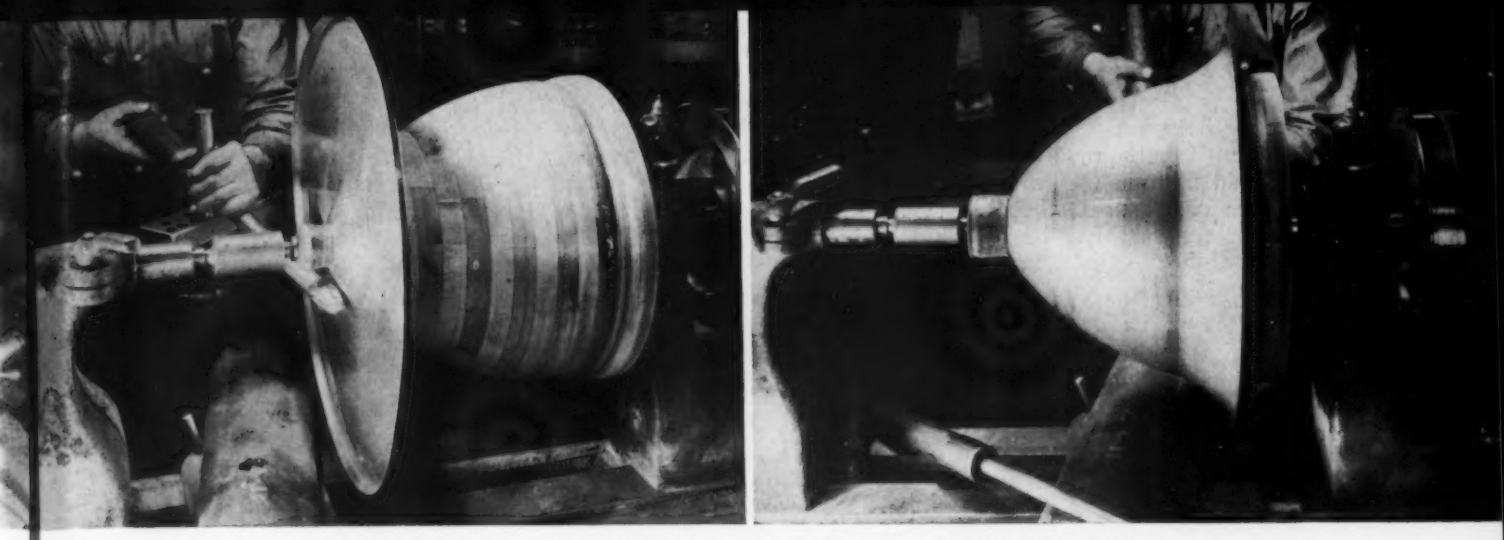
The lathe turns the metal disc and the chuck at speeds of as high as 2000 rpm. Here again the type of work being done controls the speed used. A hard metal will require less speed than a soft metal. The metal spinner, holding one end of the spinning tool under his arm, using the tool post as a fulcrum, forces the tip of the spinning tool against the revolving metal disc. Body pressure applied to the tool causes the metal of the disc to flow snugly around the form. Where greater pressure against the work piece is required, a scissor-like work tool is used to get maximum leverage. The tip of the tool may be metal or wood, blunt or pointed, round or flat . . . here again the work being done is the controlling factor.

As can be seen from this brief description, metal spinning is mechanized up to a certain point, after which handcraft and skilled craftswork take over. The operator, through long experience and practice, knows the amount of pressure

Spinning an aluminum cover from a 72″ aluminum disc.

Ordinary laundry soap (foreground) is used as lubricant in spinning this air-conditioning outlet cone.

Open glass flames just a few inches from the revolving disc make it possible to spin magnesium.



Progressive steps in a spinning operation; blunt metal tool forces 16 gage aluminum around a wooden form.

to apply, the speed of working, and exact procedures to follow for different metals and for different jobs. He must know how to work the metal quickly, yet to do so without causing the work piece to harden and crack.

The metal spinning process requires that the materials being spun be ductile. Accordingly, sheets must be annealed many times during the production cycle. This is especially true where intricate shapes are being worked. In some instances, several progressive chucks will be used with an annealing period between each chucking cycle. In addition, correct lubricants (common laundry soap is one) must be used in order to minimize friction and to speed the forming operation.

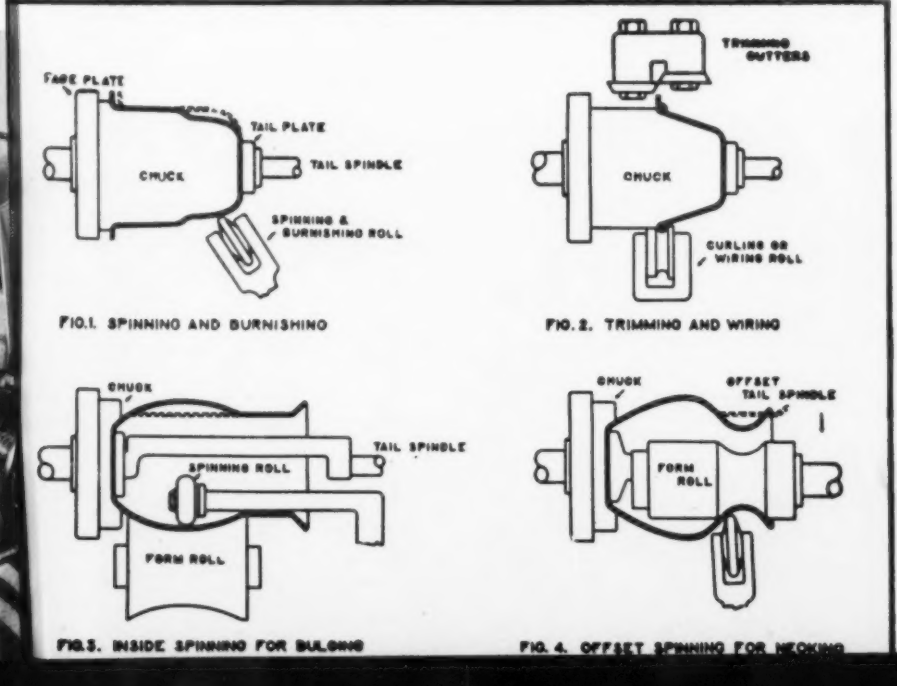
Metal spinning can in no way be compared to metal stamping and other drawing operations in so far as speed of production is concerned. The latter are almost entirely automatic operations requiring the use of semi-skilled or even unskilled operators, whereas spinning requires highly skilled personnel. It might seem that metal spinning, with its high labor cost and comparatively low output per man-machine-hour, could not compare to the monotonously rising and falling punch press stamping out a finished part with each cycle.

These apparent disadvantages are actually so only under certain conditions. If, for example, 20,000 parts are to be fabricated, there would be no question that the punch press would do the job faster and cheaper. However, when the quantity to be made is, let's say, 500 or 1,000, then the advantages of press forming (speed and low labor cost) are overshadowed by definite disadvantages (high tool cost, high overhead for setting-up and operating the press). Where the quantity to be made is limited, the use of metal spinning has overwhelmingly decisive advantages in many instances. Cost of dies for stamping is far greater than cost of chuck forms used in metal spinning. Machine time at the spinning lathe is not as costly, and time for setting-up and tooling is negligible.

It is in those areas of production where small quantities are required that metal spinning reaches its highest degree of utility. The point of diminishing return for metal spinning is of course a nebulous matter. Authorities estimate that for runs of 1,000 to 2,000 parts, metal spinning is better and cheaper than other drawing methods. Where small quantities of large parts are to be made, the advantages of metal spinning are manifold. There are a few alternate fabrication methods as satisfactory, for instance, in the operation illustrated herewith, where a 102″ diameter disc is being worked on a spinning lathe.

Since metal spinning is to a large extent a handcraft operation, the question naturally arises as to tolerances to be attained. Stamping can produce parts to tolerances of ±0.001″: the finest that can be done with metal spinning is about ±0.005″ if high cost, closely controlled spinning methods are used. Ordinary spinning tolerances are from ±0.015″ to ±0.060″. However, the indicated tolerances are usually quite satisfactory for parts to be worked on spinning lathes. The relatively large tolerances are offset by the fact that almost any shape within the realms of circularity can be made by metal spinning. The low cost of chucks and the speed with which they can be made are also compensatory factors tending to offset the broader tolerances.

Secondary operations performed on a spinning lathe: (1) spinning and burnishing; (2) trimming and wiring; (3) inside spinning for bulging; (4) offset spinning for necking.



The effect of the spinning tool is to push the metal from the revolving metal disc ahead of it in the form of slight ridges or grooves where the pressure of the tool has been applied. The overall effect is a soft, satiny appearance which in itself is quite attractive and is often used as the final finish for the metal part. If a finer finish is desired, it can be obtained readily by polishing or buffing.

Buffing, as well as other secondary operations, is frequently done on spinning lathes. One of the illustrations shows how press drawn straight shells are finished on the spinning lathe. Usually such secondary operations are performed on specially-designed lathes; however, even the ordinary spinning lathe can be adapted to some of these tasks.

There are many occasions in most plants where production demands are such that metal spinning can be called in to fill a breach when the use of regular fabrication methods is neither feasible nor possible. There are many other occasions where metal spinning, done either in the plant or outside, can relieve a difficult production and purchasing problem. As can be seen from the above discussion, metal spinning does not have universal applicability for all types of jobs. Its use is restricted to a limited number of applications; however, within its limited field metal spinning is valuable.

The limitations are as follows:

(1) Extremely small and extremely large parts can not be worked by this method. However, parts from ¼″ to over 100″ OD can be worked provided the metal is not too thick or too hard.

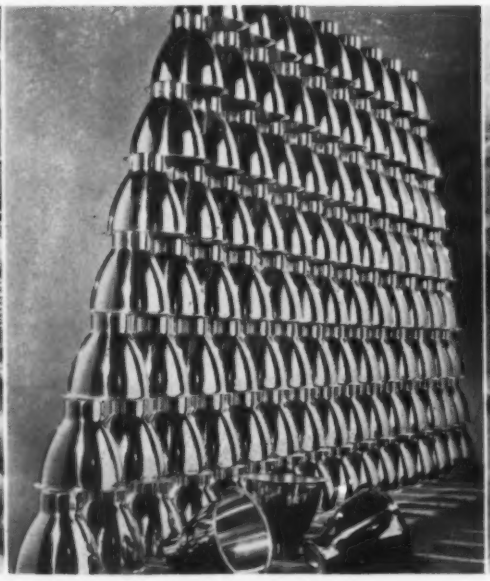
(2) Usually, soft metals up to ¼″ thick can be formed, and hard metals up to ⅛″ or 3/16″ can be worked.

(3) The part itself must of course be round and capable of being formed around a revolving chuck. Parts with irregularly shaped components and with very deep sections can not be fabricated on the metal spinning lathe.

Typical products fabricated by spinning process

Naval buoys, steel (two sections jointed)

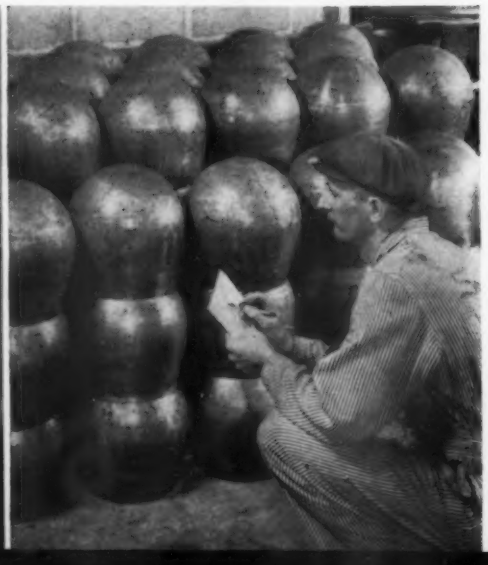
Reflectors (aluminum or stainless steel)



Aircraft cowls (0.04″ sheet aluminum)

Aluminum dust covers (polished)

Copper shells for diving helmets



MUNICIPAL PURCHASING

Cooperative purchase contracts for small communities on a state-wide basis could be the means of extending the economies of centralized purchasing organization for the taxpayers' benefit

●

By Lester F. Wallace

City Purchasing Agent
Portland, Maine

MUNICIPAL Purchasing, which involves the spending of tax money rather than private funds, must necessarily have laws, ordinances, rules, and policies which provide for proper competition, advertising for bids, awarding of contracts and numerous other details which may be eliminated in private business. One of the first principles involved is consideration of the local taxpayer as a vendor. It is our policy in Portland to buy everything possible from our local dealers and jobbers, for, after all, they are paying the bills. However, in order for the local vendor to get the business, he must be in a competitive position as to quality, price, service and delivery.

In this discussion, it is assumed that Centralized Purchasing is a recognized principle, just as in any successful business centralization of authority is necessary for efficient operation. It seems reasonable to believe that real economy cannot be attained in the purchase and utilization of materials if the heads of all departments are permitted to dabble in the process of buying. True centralization of purchasing requires that the Purchasing Agent's authority and control of purchases shall be as absolute and definite as the Treasurer's control of finances, or the Sales Manager's control of sales.

It is not the function of the Purchasing Department to determine what to buy, but simply to procure what the requisitioning department requires, at the lowest possible price, quality and other factors having been taken into consideration.

Specifications should be furnished by the various departments, but they should not be so all inclusive or unduly restrictive that they stifle competition. Centralized Purchasing insures that all purchases shall be handled and consummated by the Purchasing Department; that the Purchasing Department shall be responsible for the procurement of materials or equipment in conformity with specifications; that the selection of sources of supply shall be the function of the Purchasing Department, and that these prerogatives of the Purchasing Department must be understood and adhered to by the various department heads.

If these conditions just set forth are complied with, it should result in the following:

1. Center the authority and responsibility for purchases instead of dividing it among department heads.
2. Permit commodity standards to be set for all using departments, thus reducing the number of items carried in stock by each department.
3. Combine the requirements of all departments, resulting in volume purchases, larger discounts, and substantial savings.
4. Tend to keep waste and extravagance at a minimum by having proper records to show normal needs.
5. Make possible the purchasing of commodities when market conditions are most favorable.
6. Make possible the maintaining of standard specifications.

In organizations, both industrial and governmental, where opportunity is afforded to compare the results of past decentralization with present centralization of purchasing, the savings under the latter method range from 10% to more than 25% of the entire purchase budget. It is a reasonable assumption that proper centralization will almost invariably eliminate at least one dollar of waste or extravagance in every ten dollars of expenditure. Applying the lowest percentage to the estimated 3 billion dollars of purchases made annually by state and local governmental agencies would mean a saving of $300,000,000 and that's a lot of that "folding greenstuff" even in these days.

For the proper functioning of Centralized Purchasing a Revolving Stock Account is a necessity. This enables a Purchasing Agent to make purchases at his discretion, to be charged to the revolving fund and later billed out to the using depart-

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Address at the annual meeting of the Maine Municipal Association, Augusta, Maine, November 21, 1947.

ment and credited to the revolving fund. In this manner a fund of $5,000 can be turned over several times in a year, providing both a service and a saving. In Portland I have such a Fund, which usually runs between $5,000 and $10,000. As a matter of fact, the outstanding balance in the Stock Account has never been over $8,000.

During the days when state, county and local governments had top priority on government surplus, this revolving fund was used to great advantage. Only recently, with an anticipated increase in the price of tires staring us in the face and with departmental appropriations nearly exhausted, I was able to purchase a large quantity of tires before the increase became effective, by charging the expenditure to the revolving fund. On or about January 2, 1948, or after the 1948 appropriations are established, we'll charge these tires out to the various departments, credit our stock account, and definitely save the City from 7½% to 10% of the amount of that tire purchase, which saving otherwise could not have been effected.

The red tape we have tried to reduce to a minimum; we endeavor to avoid delays in procuring needed items and processing requisitions; we strive to render service to all departments which will assist them in their various functions; we are constantly after the best quality at the lowest price; we insist on a check-up of all goods delivered, that the City may be sure of receiving what it pays for; we spot-check weights and quantities such as coal, gasoline, fuel and range oil, etc.; we permit all departments *in emergencies* to immediately cover their needs and confirm later; we analyze market reports and conditions to be as conversant and up to date as possible; and all of these things which we strive to do are simply the functions that any Centralized Purchasing Department performs.

Since many of our Maine communities are small and therefore perhaps not in a position to warrant the setting up of a Centralized Purchasing Department, and feeling as I have for some time and as I expressed myself at the City Managers' Institute last September at the University of Maine, that the information and data assembled in the Purchasing Department at Portland might be useful and beneficial to the rest of the State, I have given a lot of thought to the matter. Your efficient secretary, Leigh Webber, has been in conference with me several times on this subject since the September meeting at Orono and we are together trying to work out some practical plan to make available any data which will enable the cities and towns to purchase to the utmost advantage. At present, it is not the thought to attempt actual purchasing for communities, as that might involve too many legal entanglements as to the lack of right to delegate authority, etc., but simply to put at the disposal of any who wish, such information as might be pertinent to their particular needs.

Because there are so many items that are peculiar to municipalities which are not sold by local dealers or jobbers, it is not beyond the realm of possibility that some way may be found to contract for certain items on a state wide basis, deliveries to be taken when and as needed by various communities. I might mention in this category such items as fire hose, street brooms, street lanterns, shovels, license tags, certain printed forms which might be standardized state wide, perhaps gasoline (depending on service station locations) fuel and range oil, playground and athletic equipment, coal—both bituminous and anthracite—anti-freeze, tires, salt, asphalt, road tar, wiping waste and wiping cloths, police and firemen's uniforms and many other items.

The laws and ordinances which may have an effect on any such plan are now being checked and studied in the hope that all of us together may eventually bring out a workable and beneficial plan of Centralized Municipal Purchasing for cities and towns in Maine.

The Michigan Municipal League, I understand, makes purchases of two items only for its members, but no state in the Union has ever set up an organization for purchasing various items for the use of all communities. It well could be that again it may be said that "As Maine goes, so goes the Nation". Offers of assistance in this program have been made by the New England Purchasing Agents' Association, the National Association of Purchasing Agents and the National Institute of Governmental Purchasing, as they all realize the possible ramifications and advantages of such a plan.

"Mr. Throckmorton would like to place a rush order."

PRODUCT DELIVERY INFORMATION

THIS month's report is again marked by the addition of several new items. Outstanding delivery time changes are those reported for electrical cables and wire. Gradual filling of pipelines on many products included in the report continues to be evidenced by the growing number of manufacturers reporting "stock" or improved delivery times. "Stock" or "immediate" delivery items are dropped as soon as reported. Shortages continue however, in steel and products employing steel, and chemicals. It is again emphasized that the figures shown below usually represent the range of delivery time reported by several manufacturers.

DELIVERY TIME		
Standard Products		**Special Order**
ADHESIVES		
1 to 3 weeks		To 1 month
AIR COOLED ENGINES		
10 months		15 months
AIR EQUIPMENT		
Compressors, Below 30#		
2 weeks		2 months
Pumps, Vacuum		
2 weeks		2 months
ALUMINUM		
Sheet & Coil Products		
10 to 12 weeks		12 weeks
Extrusions		
4 to 5 weeks		6 weeks
Rod and Bar		
2 to 4 weeks		3 to 5 weeks
BEARINGS		
Ball Bearings		
3 to 4 months		4 to 6 months
Bearings, Roller		
3 to 4 months		4 to 8 months
BRASS & COPPER MILL PRODUCTS		
Brass Strip (Gauges over .016)		
2 to 3 weeks		— —
Brass Sheet, under 12"		
3 weeks		— —
Brass Sheet, over 12"		
5 to 7 weeks		— —
Seamless Copper Tube		
3 to 5 weeks		— —
Soft Copper Tube, Coils, under 1"		
8 weeks		— —
Soft Copper Tube, Larger Diameter		
4 weeks		
BRONZE PARTS		
Extruded Bronzes		
2 to 3 weeks		3 to 4 weeks
Light and Heavy Bronze Castings		
2 to 3 weeks		3 to 5 weeks
BRUSHES		
Power Driven		
1 to 3 weeks		4 to 8 weeks
Paint & Varnish Brushes		
1 to 3 weeks		4 to 8 weeks
Maintenance Brushes		
1 to 3 weeks		4 to 8 weeks
CHAIN		
Steel		
1 to 12 months		1 to 6 months
Malleable Iron Chain		
10 to 30 months		14 to 36 months
Machine Finished Roller		
18 to 24 months		— —
Welded		
1 to 12 months		— —
Weldless		
3 to 12 months		— —

DELIVERY TIME		
Standard Products		**Special Order**
CHEMICALS		
"General shortage of rubber drums, steel drums, and carboys; manufacturers taking on little additional business requiring new containers."		
Carbolic Acid		
Tight: Annual production committed under contract. Shipments restricted to customers' monthly quotas.		
Nitric Acid — Sulphuric Acid		
* * Same		
Formaldehyde		
Very short supply.		**Cannot accept additional orders.**
Chemical Process Equipment		
12 months		16 months
CLEANERS		
Parts Cleaners		
10 to 15 days		20 days
COATINGS, PROTECTIVE		
3 weeks		5 weeks
COATING EQUIPMENT, INDUSTRIAL		
Baking Ovens		
6 weeks		10 to 24 weeks
Booths, Dry Type Spray; Water Wash		
6 weeks		— —
CONTAINERS		
Bags, Paper		
30 - 60 days		90 - 150 days
Bags, cotton & burlap		
10 to 30 days		30 to 90 days
Boxes, Corrugated		
— —		4 months
Current reports indicate that immediate deliveries can be made in standard sizes by some companies.		
Boxes, Solid Fibre		
8 weeks		Spl. orders not accepted
Boxes, Fibre, Cleated		
12 weeks		2 to 5 months
Boxes, Paper, Folding		
Prompt		6 months
Cleated Plywood, Shook		
8 weeks		6 weeks
Box Shooks		
		6 weeks
Boxes, Crates, Wirebound		
— —		2 to 4 weeks
Boxes, Wooden		
— —		6 to 8 weeks
Crates, Wooden		
— —		3 to 4 months
Cooperage, Tight, Slack		
2 to 4 weeks		12 weeks
Fibre Drums		
2 to 3 weeks		— —
CONDENSER APRONS		
— —	*Chrome*	30 days
ELECTRICAL		
Cables, Wire		
4 to 6 weeks		4 to 6 weeks
Cable, Insulated		
5 to 6 months		5 to 6 months
Cables and Wire		
4 to 6 weeks		4 to 6 weeks
Bare Copper Wire		
3 to 4 weeks		3 to 4 weeks

Standard Products	Special Order
Weatherproof Wire	
3 to 4 weeks	3 to 4 weeks
Wiring Devices	
3 months	6 to 8 months
Conduits, Flexible	
1 to 5 months	1½ to 6 months
Raceway-Fittings	
60 days	90 days
Open Gen. Purpose Induction Motors (1-200hp)	
Stock to 3 months	7 to 10 months
Fan-cooled Gen. Purpose Induction (1-25hp)	
Stock to 3 months	6 to 8 months
Open Gen. Purpose d-c Motors and Generators	
Stock to 3 months	6 to 8 months
Fan-cooled or Encl. Non-Vent. d-c Motors	
— —	6 to 8 months
Open Motor Generator Sets	
— —	6 to 8 months
Large a-c Alternators and Synchronous Motors	
— —	8 to 9 months
Fractional hp	
All fractional except aircraft—9 to 12 months	
Motor Control	
75% in stock	40 weeks

SWITCH GEAR

Breakers

	Air	*Oil*
Up to 2.3 K.V.	35 weeks	35 weeks
2.3 to 6.6 KV	52-65 weeks	45 weeks
Over 6.6 KV	85 weeks	85 weeks
Up to 600 volts	16 weeks	

Capacitors

Up to 180 days, depending on rating of units desired in series parallel combination.

Transformers (Distribution)

1½ to 50 KVA — on allotment
75 to 100 KVA — 12 to 15 months
100 to 500 KVA — 15 to 18 months

(Power)

66 to 5000 KVA — 15 to 18 months
5000 KVA and over — 2 years

ELECTRODES

3 to 4 weeks	6 to 8 weeks

ENGINES, GASOLINE

Air-Cooled

10 to 12 months	— —
Single-cylinder Engines	
6 months	10 months
Four-cylinder Engines	
10 months	15 months

FASTENERS

Bolts, ⅝" and under	
3 to 15 months	3 to 6 months
Bolts, Larger	
1 to 6 months	2 months
Bolts, Stove	
6 to 8 months	
Nuts, Self-Locking	
Stock	Semi-Std. 45-60 days Specials 60 to 90 days
Nuts, M/Scs Size	
Stock to 16 months	3 months
Nuts, Bolt Sizes	
Stock to 12 months	3 months
Machine Screw Nuts	
10 to 12 months	12 months
Semi-Finish Nuts	
2 to 3 months	2 to 3 months
Cap Screws	
2 to 30 weeks	3 months
Thread Cutting Screws	
30 to 40 weeks	30 to 40 weeks
Sems Fastener Unit (up to #12 dia.)	
8 to 10 weeks	14 to 16 weeks
Sems Fastener Units (¼, 5/16, ⅜")	
30 to 40 weeks	30 to 40 weeks

Standard Products	Special Order
Machine Screws	
4 months	2 to 9 months
Milled Specials	
— —	2 to 3 months
Headed Specials	
	5 months
Recessed Head Machine Screws	
4 to 6 weeks	3 to 7 months
Recessed Head Wood Screws	
1 to 3 months	3 to 6 months
Sheet Metal Screws	
6 to 8 months	— —
Self Tapping Screws	
1 to 8 months	
Headless Set Screws	
1 to 2 months	— —
Square Head Set Screws	
6 to 7 months	— —
Hollow Head Set Screws	
4 weeks	6 to 8 weeks
Speed Nuts and Speed Clips	
Stock	2 to 6 months
Rivets	
3 to 26 weeks	4 months
Washers, Flat	
Indefinite	— —
Lock Washers	
1 to 2 weeks	4 to 6 weeks
Wood Screws	
1 to 2 months	2 to 6 months

FITTINGS

Brass, Bronze	
Stock to 12 months	30 to 60 days
Copper or Bronze, Solder Type	
Stock to 60 days	
Tube Fittings, Brass & Steel	
Stock to 1 month	5 weeks
Malleable Iron	
Small quantities 60 days to indefinite Large quantities 9 months to indefinite	
Malleable & Cast Iron Screwed Pipe	
Immediate to 4 months (depending on item)	
Stainless Steel Fittings	
60 to 90 days	90 to 150 days
Steel Tube Fittings	
Stock to 60 days	2 to 4 months

FORGINGS

— —	Brass or Aluminum	3 to 4 weeks

FURNACES

Heat Treating	
4 to 10 weeks	8 to 32 weeks
Ovens, Industrial	
4 to 10 weeks	8 to 24 weeks
Metal Fabrication	
— —	2 to 6 weeks

GASKETS-PACKINGS

Leather	
2 weeks	4 weeks
Oil Seals	
2 weeks	12 weeks
Felt Products	
2 to 3 weeks	3 to 4 weeks
Molded Parts	
3 weeks	4 to 6 weeks
Die-Cut	
	3 to 4 weeks
Blackrock Rings	
	5 to 7 weeks

GAUGES

2" Pressure	
Immediate to 30 days	60 days
2½" Pressure	
Immediate to 30 days	60 days

Standard Products	Special Order
2" Oxy-Acetylene	
Immediate to 30 days	60 days
2½" Oxy-acetylene	
Immediate to 30 days	60 days
Vacuum Gauges	
Immediate to 30 days	60 days
Compound Gauges	
Immediate to 30 days	60 days
Recording Gauges & Thermometers	
4 to 6 weeks	6 to 8 weeks
Pressure, Temperature Controls	
4 to 6 weeks	6 to 8 weeks
Recording & Controlling Pyrometers	
4 to 6 weeks	8 to 10 weeks
Linear Measuring Air Gauges	
2 to 4 weeks	4 to 8 weeks
Linear Measuring Electronic Gauges	
Stock to 3 weeks	3 to 8 weeks
GEARS	
2 to 8 weeks	10 months
According to size and type	
Differentials	
— —	10 months
GRINDERS-BUFFERS	
3 months	6 months
GRINDING WHEELS	
6 weeks	
UNIT HEATERS	
1 month	— —
HOSE, FLEXIBLE, ASSEMBLIES	
Stock to 2 weeks	30 to 90 days
HOSE	
Molded, Braided	
30 to 160 days	30 to 160 days
Wrapped Hose	
Stock to 30 days	30 days
Rubber Hose, All Types	
Stock to 30 days	30 days
INSULATION	
Mineral Wool Industrial	
1 to 3 months	— —
LEAD	
Pipe and Sheet	
2 to 3 weeks	4 to 8 weeks
LIGHTING EQUIPMENT	
3 to 5 months	6 to 8 months
Industrial Signals	
20 to 30 days	4 to 5 months
LUMBER	
Crating	
30 to 120 days	
Box Lumber	
30 to 90 days	
Hardwoods (Oak, Gum, Ash)	
Scarce—30 days to 5 months	
Yellow Pine	
1 to 4 months	
Cypress	
1 to 4 months	
Treated Lumber	
1 to 3 months	2 to 4 months
MAGNESIUM	
4 weeks	Sheet — —
MATERIAL HANDLING EQUIPMENT	
Industrial Storage Batteries, Lead acid	
Stock to 4 weeks	6 to 12 weeks
Casters, Truck	
1 to 3 months	3 to 4 months

Standard Products	Special Order
Casters, Welded Steel Plate	
2 to 4 months	
Assembly Conveyors, Belt	
3 weeks	10 weeks
Conveyors, Belt	
6 weeks to 10 months	12 weeks
Conveyor Belting	
Stock to 6 months	3 weeks to 10 months
Conveyor Belting, Rubber	
5 to 6 months	5 to 6 months
Conveyors, Coal	
4 to 6 weeks	10 to 12 weeks
Conveyors, Roller Gravity Light, Medium	
2 weeks	6 weeks
Conveyors, Sand, Gravel	
8 weeks	12 weeks
Conveyors, Inclined Belt, Stationary, Horizontal	
6 weeks	12 weeks
Elevators, Bucket	
4 to 10 months	5 to 18 months
Elevators, Hand	
1 month	4 to 6 months
Elevator Belting, Rubber	
5 to 6 months	5 to 6 months
Elevators, Portable Hand	
3 weeks	6 weeks
Elevators, Portable, Electric	
3 months	6 months
Elevators, Electric	
2 months	4 to 6 months
Elevators, Portable, Tiering	
1 to 4 months	2 to 7 months
Trucks, Hand, 2 wheel	
3 months	3 to 5 months
Jack & Skid Systems	
30 to 60 days	60 to 90 days
MOTORIZED LIFT TRUCKS	
Stationary Platform	
30 days	60-90 days
Low-lift Platform	
10 to 30 days	30 to 60 days
Low-lift Pallet	
10 to 30 days	30 to 60 days
High-lift Platform	
10 to 30 days	30 to 60 days
Tilting and non-tilting Fork	
30 to 45 days	60 to 90 days
POWER INDUSTRIAL TRUCKS	
Tractors, Gasoline Industrial	
1 to 2 months	2 to 5 months
Tractors, Electric Industrial	
1 to 7 months	3 to 10 months
Trailers, Factory Warehouse	
6 to 12 weeks	10 to 24 weeks
Platform Trucks (Stake Trucks)	
6 months	10 months
Lift Trucks, Electric (Platform)	
1 to 7 months	8 to 12 months
Fork Lift Trucks, 3,000# cap.	
30 to 60 days	60 to 90 days
Fork Truck, 2,000# cap.	
30 to 60 days	2 to 3 months
Fork Truck, 4,000# cap.	
1 to 6 months	2 to 8 months
Fork Truck, 6,000# cap.	
1 to 7 months	2 to 9 months
Low Lift Platform, 6,000# cap.	
5 months	7 months
Fork, 7,000 to 16,000#	
2 to 7 months	10 to 12 months
Baggage Trucks	
7 months	10 months
Crane Trucks	
3 to 8 months	8 to 10 months
Dump Truck, Gasoline	
90 days	90 days
Shovels, Gasoline	
30 days	90 days

Standard Products	Special Order

PIPE

Pipe, Fabricated

1 month	Carload, 3 to 4 mo. LCL, 6 to 8 weeks

PIPING

Exhausts and Blow

— —	1 to 3 months

Steel, Welded, Riveted

3 months	Indefinite

Prefabricated Piping

Indefinite	

PLASTICS

Mold, 8 to 20 weeks — Parts, 4 to 6 weeks

PUMPS

Centrifugal

Stock to 8 weeks	8 to 24 weeks
No motor — 12 weeks	24 weeks

Power Pumps

16 weeks	24 weeks

Pumps, Hydraulic

24 weeks	

Turbine

Stock to 4 weeks	12 to 16 weeks

RETAINING RINGS

Stock to 3 weeks	12 to 14 weeks

SCALES

Platform, Portable

Stock to 5 months	6 to 12 months

Truck, Wagon

3 to 7 months	6 to 11 months

Platform Dormant

2 to 4 months	4 to 8 months

Crane

2 to 4 months	6 months

Counting, Portable & Bench

2 to 4 months	4 to 6 months

Automatic Dial Scales

6 to 7 months	

SCREW MACHINE PRODUCTS

Brass, Aluminum, Steel

— —	2 to 3 weeks

SPRINGS

Extension, Compression, Torsion

2 to 4 weeks	1 to 8 weeks

Spring Stampings

— —	90 to 150 days

Flat Springs and Small Wire Forms

6 to 8 weeks	1 week to 4 months

STAMPINGS

6 to 8 weeks	

STEEL

"On a quarterly quota basis"

SPEED REDUCERS

8 weeks	10 to 14 weeks

SPROCKETS

4 to 6 weeks	6 to 8 weeks

Cut Tooth Steel

6 to 12 months	— —

Cut Tooth Cast Iron

8 to 15 months	— —

TAPES

Electric

Stock to 2 weeks	4 to 6 weeks

Cloth Back

Stock to 2 weeks	4 to 6 weeks

TEXTILE EQUIPMENT

12 months	18 months

Textile Finishing Equipment

12 months	16 months

Standard Products	Special Order

TOOLS

Twist Drills

1 to 2 weeks	3 to 4 weeks

Reamers

1 to 3 weeks	4 to 5 weeks

TRANSMISSION

Belting

Stock to 30 days	1 to 2 months

V-Belt Sheaves

Stock to 4 months	40 days to 4 months

Steel Pulleys

2 to 6 months	8 months

Friction Clutches

Stock to 4 months	4 months

Pillow Blocks

Ball and Roller Bearing

Stock to 3 Mo.	4 months

Babbitted

Stock to 2 months	4 months

TUBING

Aluminum

4 weeks	— —

Alloy

2 to 3 weeks	— —

Stainless Seamless and Welded Tubes

2 months	4 months

Seamless, Hot Finished

4 to 5 weeks	— —

Seamless, Cold Drawn

6 to 8 weeks	— —

Boiler Tubes

3 to 4 months	— —

VALVES

Bronze, Threaded

Stock to 60 days	45 to 90 days

Valves, Iron

Stock to 60 days	2 to 3 months

Valves, Steel

Stock to 90 days	2 to 3 months

Valves, General

Stock to 30 days	60 days

Stainless Steel

2 to 3 months	120 days and up

WIRE

Stainless Steel Wire

4 to 6 weeks	5 to 6 months

Carbon Steel Wire

3 weeks to 5 months	1 to 7 months

Chain Link Fence

4 to 5 months	

Gas Welding Wire

5 to 6 months	

Card Wire

6 to 8 weeks	10 to 12 weeks

Wire Forms

— —	3 to 4 months

Iron

20 weeks	— —

Platinum

10 weeks	— —

WIRE CLOTH

Copper, Bronze, Aluminum

10 months	Beyond 10 months

Standard Hardware Cloth

3 to 4 months	3 to 4 months

Coarse Industrial Cloth

1 week to 3 mos.	2 weeks to 3 mos.

Fine Industrial Cloth

1 to 12 weeks — Some immediate 1 week to 3 months

The alternatives to free competition are dictatorship by business or by the state

●

By
Hon. Robert E. Freer
Commissioner
Federal Trade Commission

●

Address at the Executives Night meeting of the Denver Purchasing Agents Association.

MARKETS – MANAGED OR FREE?

THE Federal Trade Commission is not seeking to enforce arbitrary methods of pricing, and is suggesting no formulae to replace any of the pricing practices, the legality of which has been questioned. Thus statements that the Commission seeks to enforce universal f.o.b. mill pricing or to set up local monopolies are simply without foundation.

The Commission has questioned the legality of a number of pricing systems in recent years—not on any new or strange legal theories, but because either they were the result of a combination to fix and maintain prices or were discriminatory under the Clayton Act, and its Robinson-Patman amendments.

Ancient Common Law

The law is well settled that any combination or conspiracy to fix or maintain prices is illegal. This is no new or strange theory. Under the ancient common law, free markets in which the buyers participated in the price-making process were set up and obstructions to freedom of the market were prohibited. Whether physical or monopolistic in nature, such obstructions were forbidden.

Thus it was a public offense to forestall the market by purchasing commodities before they reached the market in order to resell them at higher prices in the free, open and legitimate market.

It may interest you to know that, reflecting this traditional view, public markets at which produce is sold by farmers directly to consumers, frequently bear signs prohibiting "price-fixing" and stating that violations will be punished by fines as high as $50.00. It was a public offense also to engross, or in modern parlance, to "corner," a commodity in the market because this was regarded as an attempt to enhance prices and as a denial of equality between buyers and sellers. For similar reasons it was regarded as a public offense for a middleman to regrate or pyramid the cost between producer and consumer, the modern counterpart of which we have in our present so-called "grey markets."

The rule was also developed at common law that a seller who entered business to serve the public generally must serve all comers at a reasonable price and without discrimination. The Clayton Anti-discrimination Act is a Federal recognition and restoration of that ancient common law rule modified somewhat to meet modern conditions. Our other anti-trust statutes are also designed to reach practices which have been recognized for centuries as inimical to the integrity of a free competitive market.

Price Fixing Devices

An order was entered against a group of manufacturers of crepe paper requiring them to cease and desist from employing by agreement a method of pricing which involved dividing the country into three large zones, within each of which customers of the same class paid the same delivered prices, irrespective of the differing freight costs to customers. The Circuit Court of Appeals sustained the Commission's order, saying:

"One glance at the three zone map for bulk crepe will show the artificiality of the zone structure and the intention to obviate any natural advantage of location from price determination."

The order of the Commission and the decision of the court were based squarely upon an *agreement* to employ the zone system of selling, and further that the court was impressed by the regional discrimination

against the west inherent in the scheme.

In another recent case, the Commission entered an order requiring the manufacturers of milk and ice cream cans to cease and desist from an agreement to employ what has been characterized as a freight equalization system of pricing. By this method, each producer quoted an f.o.b. price at his factory and calculated delivered prices by adding the rail freight to destination. Where use of his own f.o.b. price, plus freight to customer from the competitor's plant, the latter formula was used in quoting. In sustaining the Commission's order against collusive use of this practice, Judge Major of the Seventh Circuit Court of Appeals said:

"It is argued, perhaps correctly, that such a freight system had long been employed by industry so that members thereof might deliver their product at the same price. . . Such being the case, the fact still remains that it was employed by petitioners for the purpose of fixing the delivered price of their product and by such use price competition was eliminated, or at any rate seriously impaired. On the face of the situation, it taxes our credulity to believe, as argued, that petitioners employed this system without any agreement or plan among themselves."

Single Basing Point Decision

Still another similar proceeding involved what is known as the single basing-point method of pricing, whereby everyone in the industry quoted a price at a single point, and added freight to the customer's location. The Commission entered an order requiring the producers of malt to cease and desist from continuing this method by agreement, and, with Judge Major again writing the opinion, the Circuit Court sustained the Commission's order, saying:

"We are of the view that the Commission's findings that a price fixing agreement existed must be accepted. Any other conclusion would do violence to common sense and the realities of the situation. The fact that petitioners utilized a system which enabled them to deliver malt at every point of destination at exactly the same price is a persuasive circumstance in itself."

All of the above cases have been plain, old-fashioned price-fixing cases. In another series of cases, the Commission and the courts have considered the legality of the so-called single-basing point system under the Clayton Act and without reference to conspiracy or agreement.

To the extent that these orders may result in the elimination of "phantom freight" and reflection of territorial advantages to buyers located near factories remote from the old Chicago base, important savings to large geographical areas may be expected.

It is common knowledge that certain areas in the west and south have suffered from discriminations of the type I have mentioned, due to pricing of goods on the fiction that they have been produced and shipped from some eastern industrial center.

New Legislation Proposed

I have recently read several speeches by a colleague of mine which constitute ringing defenses of what he calls "administered prices," and in which he decries proceedings of the Anti-Trust Division of the Department of Justice and the Commission as part of a game of "cops and robbers." He has proposed as a substitute for present methods of enforcement of the anti-trust laws new legislation which in effect would grant immunity from action under the anti-trust laws to industries which would get together and draw up a set of trade practice rules under the auspices of the Federal Trade Commission. There has been some favorable comment in the trade journals on this legislative proposal.

I appreciate that business men generally are the staunchest defenders of the system of freedom of economic enterprise under which this country has reached its present high standards. Yet for some reason they frequently fall for a proposal to "manage" that system, or the part of it in which they are most immediately concerned, through group action. Thus a group of wholesalers may become intensely irritated by what they feel to be the unfair practice on the part of manufacturers in selling direct to certain retailers, by-passing the wholesaler. The natural urge is to do something about it.

The Commission has had numerous cases of this sort in the past, where such groups have gotten together to pool their strength to "do something about it" by way of organized pressure on manufacturers to cease selling direct to retailers. I have no doubt that the men involved in these matters have been firm advocates of free competition and that it would have been impossible for most of them to have built up their businesses without resort to real competition. They would be the first to resent any organized group which tried to enforce rules of conduct upon them, yet apparently feel no inconsistency in maintaining a "black-list" of manufacturers with whom they will not deal as the result of some real or fancied wrong.

The competition of the free market is in many respects a ruthless thing. A man may build a costly plant near his raw materials but distant from his markets. Discovery of raw materials nearer the market may ruin him unless the discoverer can be persuaded to price his product so that his advantageous location is equalized. This same thing may occur where any of the other factors, including new machinery or processes, research, or just plain American ingenuity throw an industry out of balance for a time, and give some producer advantages not enjoyed by others. From the standpoint of the business man, the easiest thing to do is reach some understanding whereby the status quo is preserved and the man with the advantage forbears from translating it into lowered prices.

Shackling Progress

The temptation to soften the effects of competition is ever present in business—it is perfectly understandable that a man might resort to agreement with competitors to avoid failure. Perhaps you are familiar with individual instances of such coerced or desperation agreements which you consider to be justified morally, ethically and legally. However, can you visualize the remarkable industrial growth of this country under any system of private or governmental controls which would have removed the harsh realities of free and vigorous competition? Can you visualize the growth and development of our present automobile industry if it had been organized and run to keep in business the badly located, badly run or uneconomic producers whose bones lie along the trail?

Grim Alternatives

What are the alternatives to free and fair competition? Only two present themselves to my mind. One is a system of industrial controls by business itself. The other is a similar system in which the responsibility is shared both by business

and the government. Now, to be realistic for a moment, do you really feel that you could substitute the absolute decision and judgment of a group of producers for the forces of a free competitive market? Do you feel, at heart, that any group in industry is wise enough and unselfish enough to run the industry in the public interest so that it could be removed from the operations of the anti-trust laws or other control?

Without meaning to cast any reflection upon the ability or the integrity of the basic material producers, I doubt seriously that you feel that they could be entrusted with such a responsibility, and, probably, you believe that in any case the end result of such assignment of responsibility must be to place some sort of check upon their actions, so that when their primary interest in the welfare of their stockholders might conflict with the larger public interest, the public will not suffer. The only check which can be used for this purpose is the government itself, so that such a course must lead to divided responsibility for management of industry between industry and the government, much as has been developed in the field of public utility regulation.

Super-State Control

When I spoke of the two alternatives above I was referring to the short range prospects. It does not require any great stretch of the imagination to foresee, in the long run, that managed markets, either by business men themselves or by business men under government supervision, must lead ultimately to a disappearance of any lines of demarcation between business and government and the development of the super state which will tell us all the whats, whens, whys and hows of everything we do.

We had some experience with substitution for competition of government-regulated industry controls during the N. R. A. period. Entry into certain fields was restricted, as were additions to plant facilities. Production controls were formulated. Nearly every conceivable control to alleviate the distress of competition was tinkered with in one or the other of the codes. Pants pressers, filling station operators, and even manufacturers who refused to conform to the rules laid down were hauled before the courts. A seller who deviated from the prices, terms or conditions of sale filed with the code authority in order to secure a choice piece of business was a "chiseler." What had in other times been normal individual rights and legitimate business practices suddenly became illegal.

I refuse to believe that American business men want to return to such a system of management and controls as a permanent, peace-time proposition, in spite of their grumbling at the imperfections of the free market in operation.

Competition Is the Issue

The sponsors of legislation to substitute a "rule of law" in industry, and to supplant the present anti-trust policy by one of self-imposed rules of conduct, deny that they propose a return to anything like the N. R. A. codes. If this is really true, why then is it stated to be necessary to suspend the anti-trust laws for those industries which meet and formulate rules? Present procedures of the Federal Trade Commission encourage any industry group to come in and draw a set of trade practice rules to eliminate unfair or deceptive practices which may be present, and to promote ethical and moral standards of conduct above and beyond the minimum standards necessary to "get by." The Commission has always avoided approving any rule which would promote conduct in violation of the anti-trust laws, and the trade practice rules as now drawn do not give anyone immunity from the anti-trust laws. Even the N. R. A. codes purported to give lip-service to the Sherman Act, and exemptions from its operations were specific and narrow in scope.

I question whether proponents of such a plan have thought the matter through to its logical end product which can only be complete and thorough government regulation. I am a government official and I would be the first one to tell you that there is no single man or group of men in the government service, or likely to be in the government service within the next several hundred years, sufficiently wise and dispassionate to substitute his or their judgment for the "natural" regulation of a free market.

The sum of the efforts of all of us is the free market, and it can never be controlled or managed successfully by any small group of men for more than an instant. Its rewards for success are munificent and its penalties for failure are harsh, but it is truly representative of all of us. Ten, a hundred, a thousand businessmen may be wrong about a decision at any one time, and many may fail as a result, but the cumulative effect on the market may be very slight. On the other hand, consider the effect of such an error by a government official or a group of businessmen with the power of management of the market.

When you are urged to join in a movement to repeal the anti-trust laws, to support a program of self-regulation for industry, or to foster managed markets, stop and ask yourself whether the immediate advantages urged upon you outweigh the prospective paternalism of a controlled economy wherein government officials may have the responsibility for every important economic decision. Never forget that the American economic machine is the most unbelievably complicated organization that the world has ever seen—that its continued functioning depends upon the automatically interrelated operation of hundreds of thousands of working parts, any of which can affect its efficiency. Even the relatively simple proposition of setting ceiling prices during the wartime emergency required an organization of thousands upon thousands of employees which could function very imperfectly since every action in setting a price at one point necessarily raised a host of other problems and complications at other points.

Not a Steady Diet

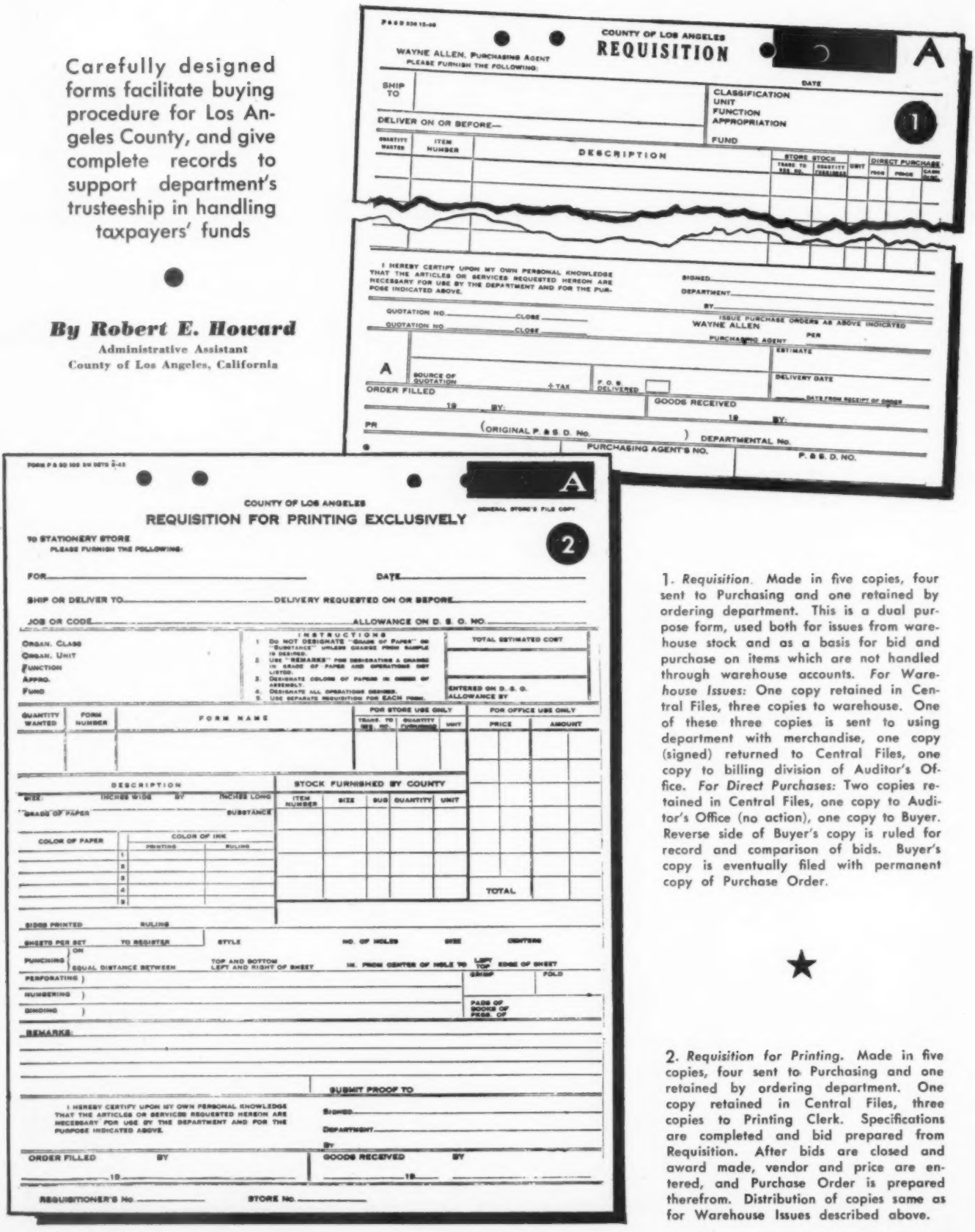
During the N. R. A. and during the war we had some experience with cooperative controls of the markets. We also have been able to observe the results of such controls in other countries. While some measures of control are doubtless necessary in periods of emergency, there is nothing in our experience with them which would make them attractive or recommend them to us as a steady diet.

Neither the Federal Trade Commission nor the Department of Justice would be able to enforce the anti-trust laws against the active resistance of an unwilling and unsympathetic populace. In the last analysis, the effectiveness of the enforcement of the anti-trust laws, or that of any other set of laws in our democracy, must depend upon your willingness to accept them as guiding principles in your daily actions, and to give them your active support in your daily business affairs.

A COMPREHENSIVE PURCHASING SYSTEM

Carefully designed forms facilitate buying procedure for Los Angeles County, and give complete records to support department's trusteeship in handling taxpayers' funds

By Robert E. Howard
Administrative Assistant
County of Los Angeles, California



COUNTY OF LOS ANGELES
REQUISITION
A
WAYNE ALLEN, PURCHASING AGENT
PLEASE FURNISH THE FOLLOWING:
DATE
SHIP TO
CLASSIFICATION
UNIT
FUNCTION
APPROPRIATION
FUND
1
DELIVER ON OR BEFORE—
QUANTITY WANTED | ITEM NUMBER | DESCRIPTION | STORE STOCK | DIRECT PURCHASE
I HEREBY CERTIFY UPON MY OWN PERSONAL KNOWLEDGE THAT THE ARTICLES OR SERVICES REQUESTED HEREON ARE NECESSARY FOR USE BY THE DEPARTMENT AND FOR THE PURPOSE INDICATED ABOVE.
SIGNED
DEPARTMENT
BY
QUOTATION NO. CLOSE
QUOTATION NO. CLOSE
ISSUE PURCHASE ORDERS AS ABOVE INDICATED
WAYNE ALLEN
PURCHASING AGENT
PER
A
SOURCE OF QUOTATION
+ TAX
F. O. B. DELIVERED
ESTIMATE
DELIVERY DATE
DATE FROM RECEIPT OF ORDER
ORDER FILLED
19 BY:
GOODS RECEIVED
19 BY:
PR
(ORIGINAL P. & S. D. No.
) DEPARTMENTAL No.
PURCHASING AGENT'S NO.
P. & S. D. NO.

COUNTY OF LOS ANGELES
REQUISITION FOR PRINTING EXCLUSIVELY
A
GENERAL STORE'S FILE COPY
TO STATIONERY STORE
PLEASE FURNISH THE FOLLOWING:
2
FOR
DATE
SHIP OR DELIVER TO
DELIVERY REQUESTED ON OR BEFORE
JOB OR CODE
ALLOWANCE ON D. S. O. NO.
ORGAN. CLASS
ORGAN. UNIT
FUNCTION
APPRO.
FUND
INSTRUCTIONS
1. DO NOT DESIGNATE "GRADE OF PAPER" OR "SUBSTANCE" UNLESS CHANGE FROM SAMPLE IS DESIRED.
2. USE "REMARKS" FOR DESIGNATING A CHANGE IN GRADE OF PAPER AND OPERATIONS NOT LISTED.
3. DESIGNATE COLORS OF PAPERS IN ORDER OF ASSEMBLY.
4. DESIGNATE ALL OPERATIONS DESIRED.
5. USE SEPARATE REQUISITION FOR EACH FORM.
TOTAL ESTIMATED COST
ENTERED ON D. S. O. ALLOWANCE BY
QUANTITY WANTED | FORM NUMBER | FORM NAME | FOR STORE USE ONLY: TRANS. TO REQ. NO. | QUANTITY FURNISHED | UNIT | FOR OFFICE USE ONLY: PRICE | AMOUNT
DESCRIPTION
SIZE: INCHES WIDE BY INCHES LONG
GRADE OF PAPER SUBSTANCE
COLOR OF PAPER | COLOR OF INK: PRINTING | RULING
1
2
3
4
5
STOCK FURNISHED BY COUNTY: ITEM NUMBER | SIZE | SUB | QUANTITY | UNIT
TOTAL
SIDES PRINTED RULING
SHEETS PER SET TO REGISTER
STYLE NO. OF HOLES SIZE CENTERS
PUNCHING ON EQUAL DISTANCE BETWEEN TOP AND BOTTOM LEFT AND RIGHT OF SHEET IN. FROM CENTER OF HOLE TO LEFT TOP EDGE OF SHEET
PERFORATING
NUMBERING
BINDING
GRAIN FOLD
PADS OF BOOKS OF PKGS. OF
REMARKS:
SUBMIT PROOF TO
I HEREBY CERTIFY UPON MY OWN PERSONAL KNOWLEDGE THAT THE ARTICLES OR SERVICES REQUESTED HEREON ARE NECESSARY FOR USE BY THE DEPARTMENT AND FOR THE PURPOSE INDICATED ABOVE.
SIGNED
DEPARTMENT
BY
ORDER FILLED BY
19
GOODS RECEIVED BY
19
REQUISITIONER'S No.
STORE No.

1. *Requisition.* Made in five copies, four sent to Purchasing and one retained by ordering department. This is a dual purpose form, used both for issues from warehouse stock and as a basis for bid and purchase on items which are not handled through warehouse accounts. *For Warehouse Issues:* One copy retained in Central Files, three copies to warehouse. One of these three copies is sent to using department with merchandise, one copy (signed) returned to Central Files, one copy to billing division of Auditor's Office. *For Direct Purchases:* Two copies retained in Central Files, one copy to Auditor's Office (no action), one copy to Buyer. Reverse side of Buyer's copy is ruled for record and comparison of bids. Buyer's copy is eventually filed with permanent copy of Purchase Order.

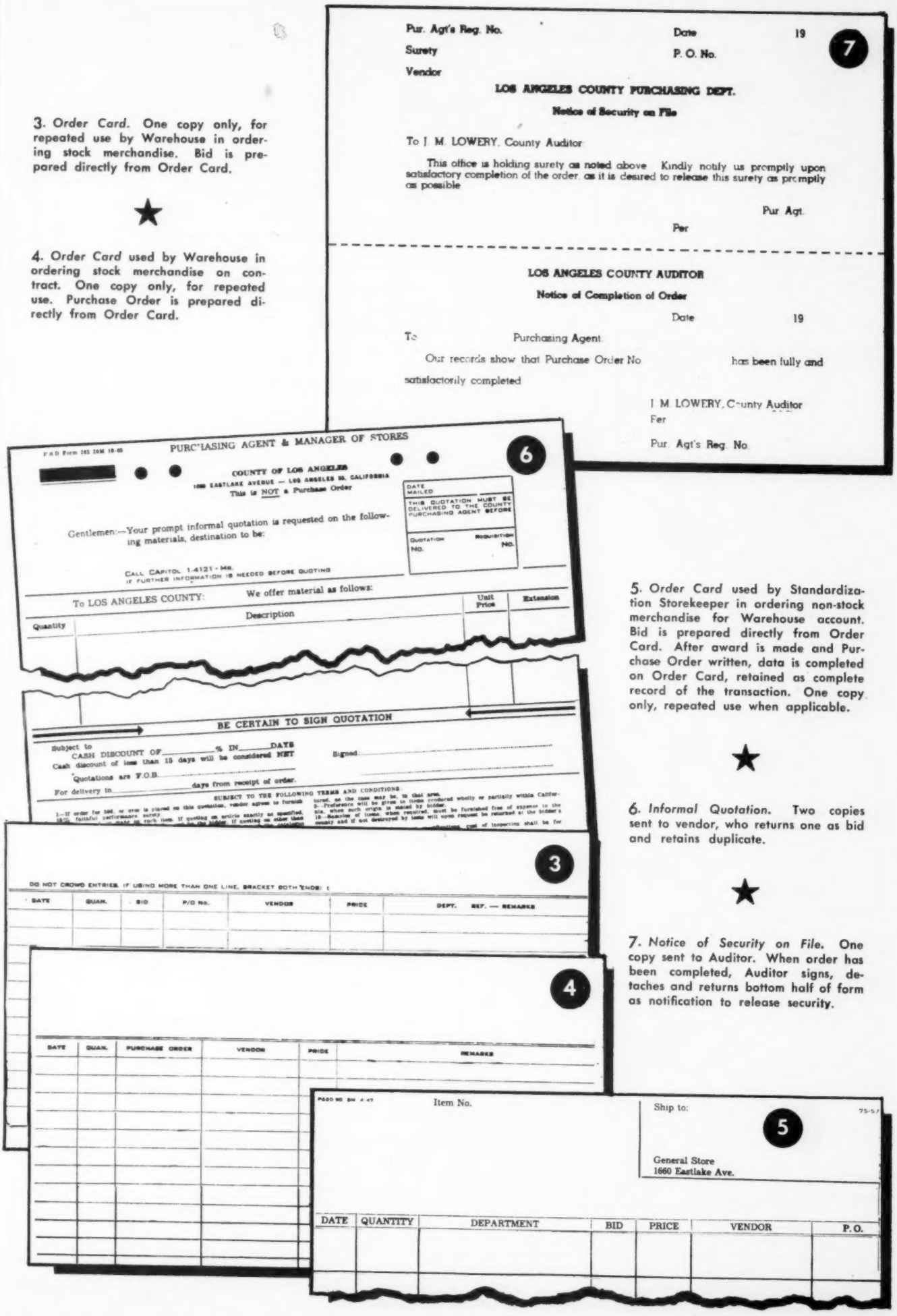
★

2. *Requisition for Printing.* Made in five copies, four sent to Purchasing and one retained by ordering department. One copy retained in Central Files, three copies to Printing Clerk. Specifications are completed and bid prepared from Requisition. After bids are closed and award made, vendor and price are entered, and Purchase Order is prepared therefrom. Distribution of copies same as for Warehouse Issues described above.

3. *Order Card.* One copy only, for repeated use by Warehouse in ordering stock merchandise. Bid is prepared directly from Order Card.

★

4. *Order Card* used by Warehouse in ordering stock merchandise on contract. One copy only, for repeated use. Purchase Order is prepared directly from Order Card.



7

Pur. Agt's Reg. No. Date 19

Surety P. O. No.

Vendor

LOS ANGELES COUNTY PURCHASING DEPT.

Notice of Security on File

To J. M. LOWERY, County Auditor

This office is holding surety as noted above. Kindly notify us promptly upon satisfactory completion of the order, as it is desired to release this surety as promptly as possible

Pur. Agt.

Per

LOS ANGELES COUNTY AUDITOR

Notice of Completion of Order

Date 19

To Purchasing Agent

Our records show that Purchase Order No has been fully and satisfactorily completed

J. M. LOWERY, County Auditor

Per

Pur. Agt's Reg. No.

6

PURCHASING AGENT & MANAGER OF STORES

COUNTY OF LOS ANGELES

1000 EASTLAKE AVENUE — LOS ANGELES 33, CALIFORNIA

This is NOT a Purchase Order

DATE MAILED

THIS QUOTATION MUST BE DELIVERED TO THE COUNTY PURCHASING AGENT BEFORE

QUOTATION NO.

REQUISITION NO.

Gentlemen:—Your prompt informal quotation is requested on the following materials, destination to be:

CALL CAPITOL 1-4121 - Ext.
IF FURTHER INFORMATION IS NEEDED BEFORE QUOTING

To LOS ANGELES COUNTY: We offer material as follows:

Quantity	Description	Unit Price	Extension

BE CERTAIN TO SIGN QUOTATION

Subject to CASH DISCOUNT OF ____% IN ____DAYS
Cash discount of less than 15 days will be considered NET

Signed:

Quotations are F.O.B.

For delivery in ____ days from receipt of order.

SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

3

DO NOT CROWD ENTRIES. IF USING MORE THAN ONE LINE, BRACKET BOTH ENDS: [

DATE	QUAN.	BID	P/O No.	VENDOR	PRICE	DEPT. REF. — REMARKS

4

DATE	QUAN.	PURCHASE ORDER	VENDOR	PRICE	REMARKS

Item No.

Ship to:

5

75-57

General Store
1660 Eastlake Ave.

DATE	QUANTITY	DEPARTMENT	BID	PRICE	VENDOR	P.O.

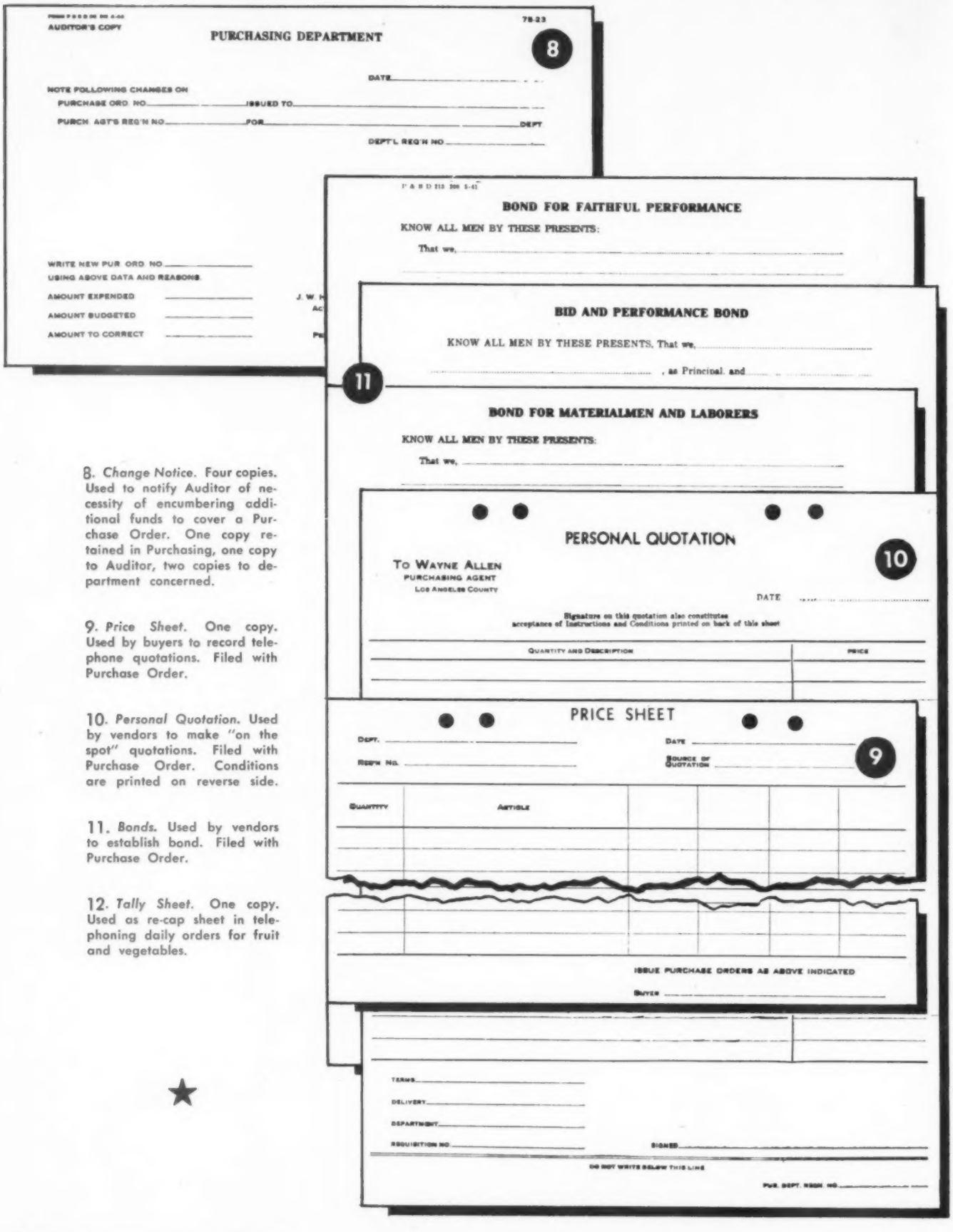
5. *Order Card* used by Standardization Storekeeper in ordering non-stock merchandise for Warehouse account. Bid is prepared directly from Order Card. After award is made and Purchase Order written, data is completed on Order Card, retained as complete record of the transaction. One copy only, repeated use when applicable.

★

6. *Informal Quotation.* Two copies sent to vendor, who returns one as bid and retains duplicate.

★

7. *Notice of Security on File.* One copy sent to Auditor. When order has been completed, Auditor signs, detaches and returns bottom half of form as notification to release security.



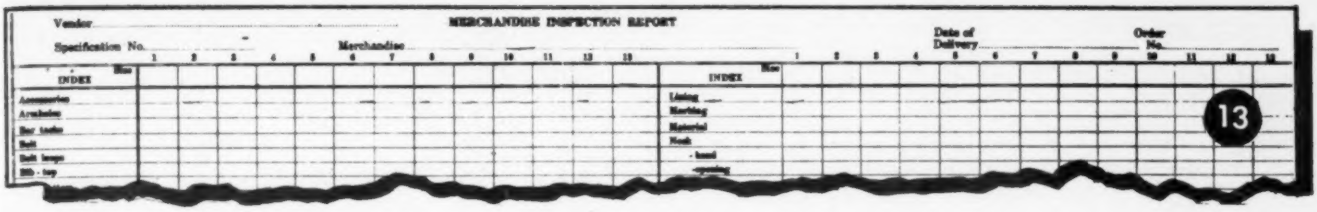
8. *Change Notice.* Four copies. Used to notify Auditor of necessity of encumbering additional funds to cover a Purchase Order. One copy retained in Purchasing, one copy to Auditor, two copies to department concerned.

9. *Price Sheet.* One copy. Used by buyers to record telephone quotations. Filed with Purchase Order.

10. *Personal Quotation.* Used by vendors to make "on the spot" quotations. Filed with Purchase Order. Conditions are printed on reverse side.

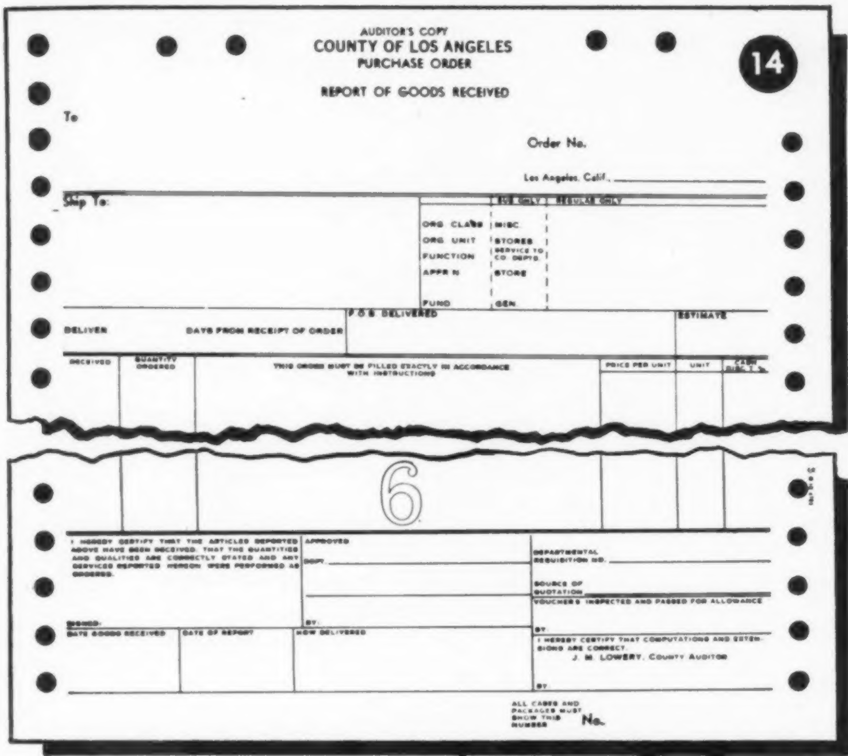
11. *Bonds.* Used by vendors to establish bond. Filed with Purchase Order.

12. *Tally Sheet.* One copy. Used as re-cap sheet in telephoning daily orders for fruit and vegetables.



Vendor ... MERCHANDISE INSPECTION REPORT ... Date of Delivery ... Order No. ...
Specification No. ... Merchandise ...

13



AUDITOR'S COPY
COUNTY OF LOS ANGELES
PURCHASE ORDER
REPORT OF GOODS RECEIVED

14

To
Order No.
Los Angeles, Calif., ...
Ship To:
ORG. CLASS / MISC.
ORG. UNIT / STORES
FUNCTION / SERVICE TO CO. DEPTS.
APPR'N / STORE
FUND / GEN.
DELIVER ... DAYS FROM RECEIPT OF ORDER
F.O.B. DELIVERED
ESTIMATE
RECEIVED / QUANTITY ORDERED / THIS ORDER MUST BE FILLED EXACTLY IN ACCORDANCE WITH INSTRUCTIONS / PRICE PER UNIT / UNIT

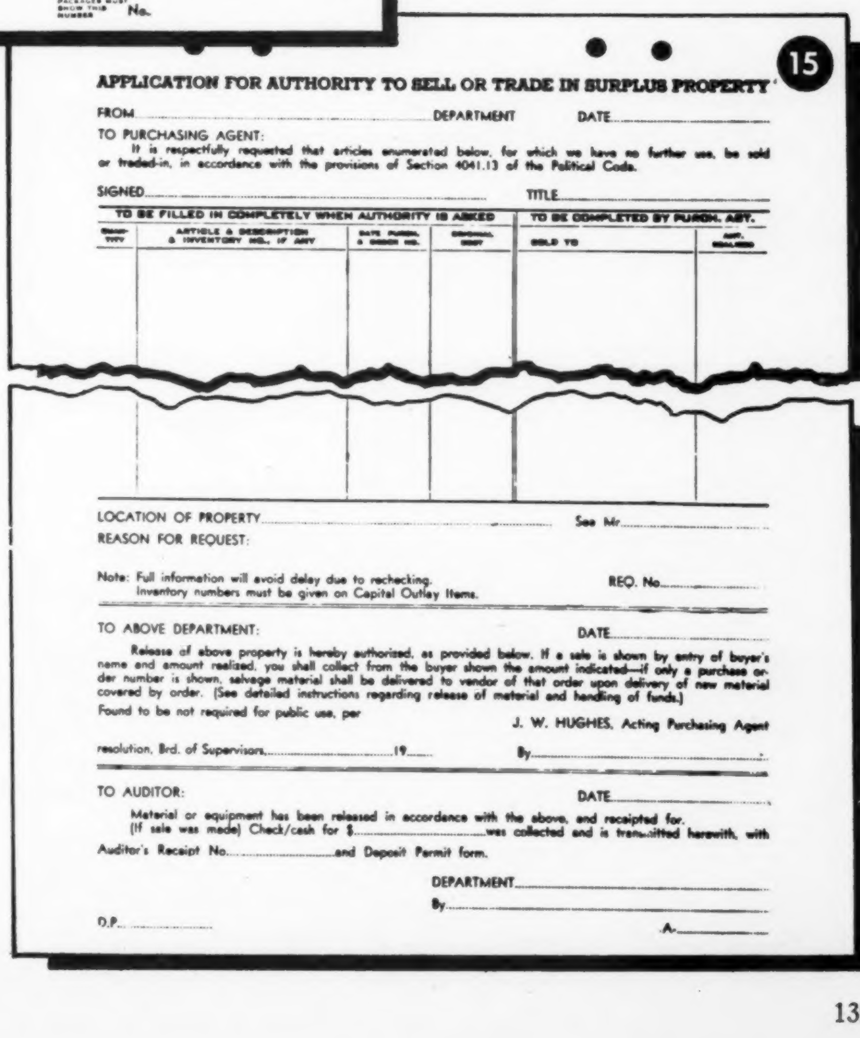
6

I HEREBY CERTIFY THAT THE ARTICLES REPORTED ABOVE HAVE BEEN RECEIVED, THAT THE QUANTITIES AND QUALITIES ARE CORRECTLY STATED AND ANY SERVICES REPORTED HEREON WERE PERFORMED AS ORDERED.
APPROVED
DEPT.
BY
DEPARTMENTAL REQUISITION NO.
SOURCE OF QUOTATION
VOUCHERS INSPECTED AND PASSED FOR ALLOWANCE
BY
I HEREBY CERTIFY THAT COMPUTATIONS AND EXTENSIONS ARE CORRECT.
J. M. LOWERY, COUNTY AUDITOR
BY
SIGNED
DATE GOODS RECEIVED / DATE OF REPORT / HOW DELIVERED
ALL CASES AND PACKAGES MUST SHOW THIS NUMBER No.

13. *Inspection Report.* One copy. Used in checking specifications on clothing, dry goods, and similar merchandise.

★

14. *Receiving Report.* Three copies. Used in reporting deliveries made to General and Stationery Stores. One copy retained by Stores, one copy to Auditor's Stock Control, one copy to Auditor's General Claims Division to authorize payment of Purchase Order.



15

APPLICATION FOR AUTHORITY TO SELL OR TRADE IN SURPLUS PROPERTY

FROM ... DEPARTMENT DATE ...
TO PURCHASING AGENT:
It is respectfully requested that articles enumerated below, for which we have no further use, be sold or traded-in, in accordance with the provisions of Section 4041.13 of the Political Code.
SIGNED ... TITLE ...
TO BE FILLED IN COMPLETELY WHEN AUTHORITY IS ASKED / TO BE COMPLETED BY PURCH. AGT.
QUANTITY / ARTICLE & DESCRIPTION & INVENTORY NO., IF ANY / DATE PURCH. & ORDER NO. / ORIGINAL COST / SOLD TO / AMT. REALIZED

LOCATION OF PROPERTY ... See Mr. ...
REASON FOR REQUEST:
Note: Full information will avoid delay due to rechecking. Inventory numbers must be given on Capital Outlay Items. REQ. No. ...
TO ABOVE DEPARTMENT: DATE ...
Release of above property is hereby authorized, as provided below. If a sale is shown by entry of buyer's name and amount realized, you shall collect from the buyer shown the amount indicated—if only a purchase order number is shown, salvage material shall be delivered to vendor of that order upon delivery of new material covered by order. (See detailed instructions regarding release of material and handling of funds.)
Found to be not required for public use, per J. W. HUGHES, Acting Purchasing Agent
resolution, Brd. of Supervisors, ... 19... By ...
TO AUDITOR: DATE ...
Material or equipment has been released in accordance with the above, and receipted for.
(If sale was made) Check/cash for $ ... was collected and is transmitted herewith, with Auditor's Receipt No. ... and Deposit Permit form.
DEPARTMENT ...
By ...
D.P. ... A. ...

★

15. *Application for Permission to Trade-In Surplus Property.* Six copies. One copy retained in department where request originates, five copies to Purchasing. When sale or trade-in is made, original is sent to files, three copies returned to department, one copy to Property Section of Auditor's Office. One of the department copies is completed and returned to Purchasing, one copy completed and returned to Property Section.

16. *Trade-In—Notice of Award.* Three copies. Used to notify vendor to pick up property traded in. One copy retained, two copies to vendor, one of which is delivered to department as receipt for property picked up.

17. *Change or Cancellation Notice.* Two copies. Used to notify department of change or cancellation of a requisition. One copy retained in Purchasing, one copy to department.

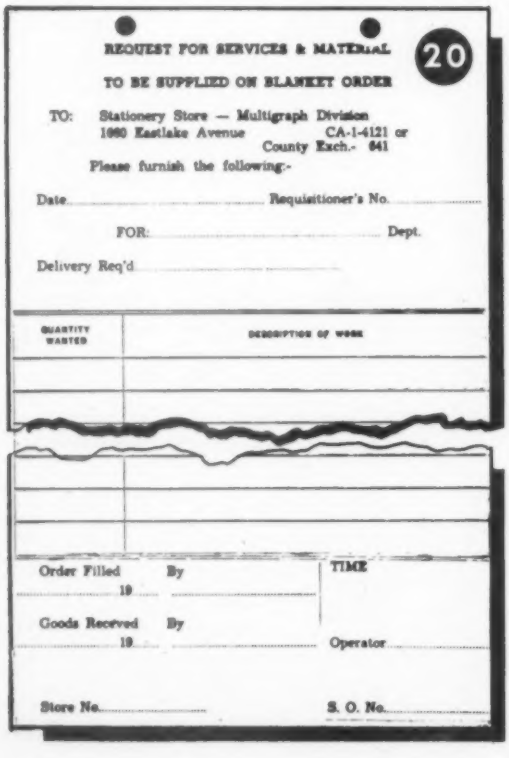
18. *Change Notification.* Eight copies. Used to change a Purchase Order in any way. Original to vendor, one copy retained by Purchasing, one copy to Warehouse, two copies to Auditor, two copies to using department (or, in case of stores purchases, one copy to Receiving Clerk, one copy to files), one copy to Follow-Up Clerk.

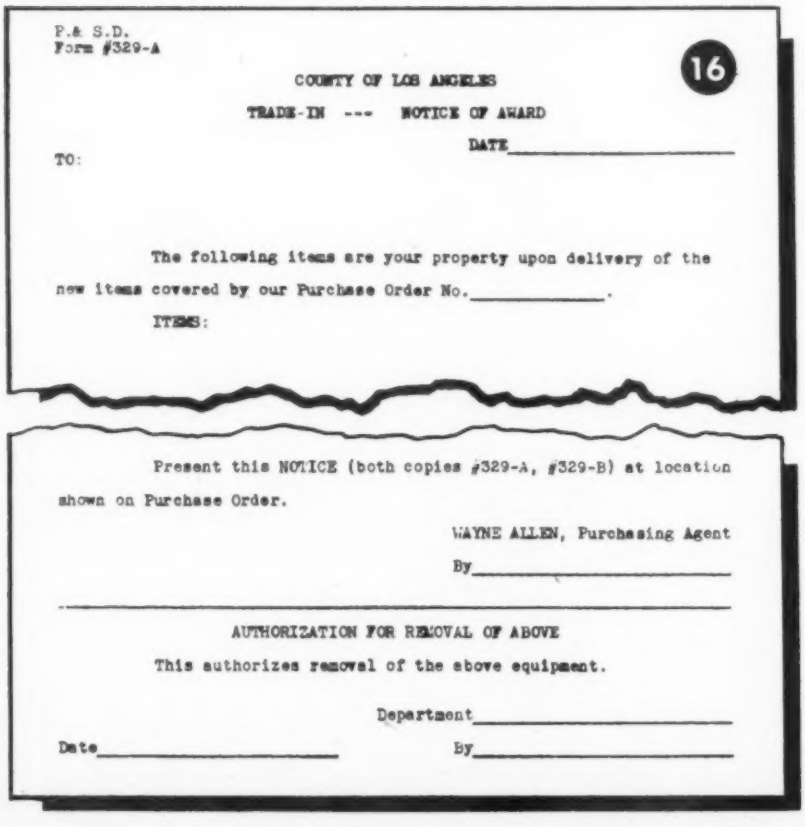
19. *Statement of Bids.* One copy. Used as register of bids mailed.

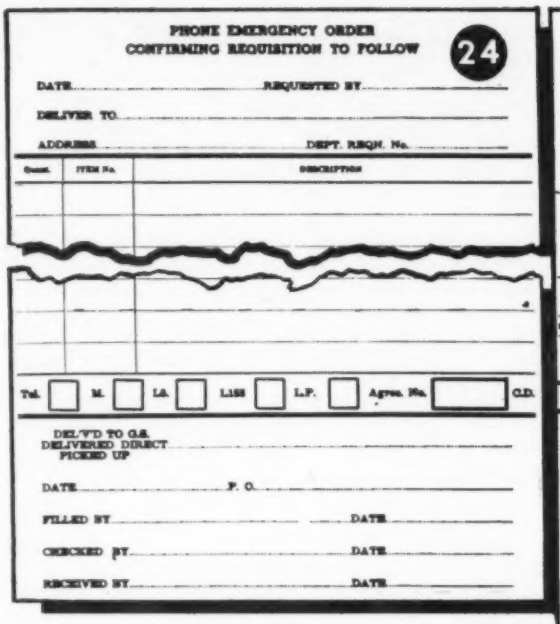
20. *Request for Services and Material on Blanket Order.* Used on orders manufactured by Purchasing & Stores Multigraph Division. Eliminates using a complete requisition for each job. Billed on one requisition each quarter. Three copies. When job is completed, one copy retained, two copies sent with job to the department. Signature is obtained on one of these copies, which is returned and matched with retained copy.

21. *Authorization for Signature.* One copy. Used on Register Desk to check authorized signatures on incoming requisitions.

22. *Sub-Order.* Used by departments to order against a "various vendors" Purchase Order. Four copies. One copy to vendor, one to Purchasing, one retained by using department, one to Auditor's General Claims. Before distribution, all copies must be forwarded to Purchasing for approval.







PHONE EMERGENCY ORDER
CONFIRMING REQUISITION TO FOLLOW

24

DATE ..... REQUESTED BY .....

DELIVER TO .....

ADDRESS ..... DEPT. RSQN. No. .....

Quant.	ITEM No.	DESCRIPTION

Tel. ☐ M. ☐ LA. ☐ L188 ☐ L.P. ☐ Agree. No. ☐ C.D. ☐

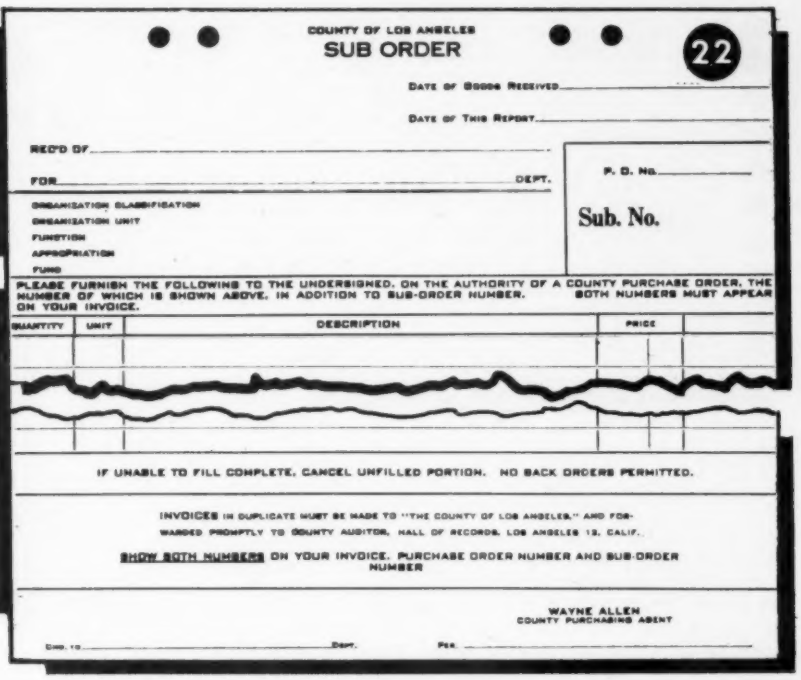
DEL'VD TO G.S.
DELIVERED DIRECT
PICKED UP

DATE ..... P. O. .....

FILLED BY ..... DATE .....

CHECKED BY ..... DATE .....

RECEIVED BY ..... DATE .....



COUNTY OF LOS ANGELES
SUB ORDER

22

DATE OF GOODS RECEIVED .....

DATE OF THIS REPORT .....

REQ'D BY .....

FOR ..... DEPT.

P. O. No. .....

Sub. No.

ORGANIZATION CLASSIFICATION
ORGANIZATION UNIT
FUNCTION
APPROPRIATION
FUND

PLEASE FURNISH THE FOLLOWING TO THE UNDERSIGNED, ON THE AUTHORITY OF A COUNTY PURCHASE ORDER, THE NUMBER OF WHICH IS SHOWN ABOVE, IN ADDITION TO SUB-ORDER NUMBER. BOTH NUMBERS MUST APPEAR ON YOUR INVOICE.

QUANTITY	UNIT	DESCRIPTION	PRICE	

IF UNABLE TO FILL COMPLETE, CANCEL UNFILLED PORTION. NO BACK ORDERS PERMITTED.

INVOICES IN DUPLICATE MUST BE MADE TO "THE COUNTY OF LOS ANGELES," AND FORWARDED PROMPTLY TO COUNTY AUDITOR, HALL OF RECORDS, LOS ANGELES 13, CALIF.

SHOW BOTH NUMBERS ON YOUR INVOICE, PURCHASE ORDER NUMBER AND SUB-ORDER NUMBER

WAYNE ALLEN
COUNTY PURCHASING AGENT

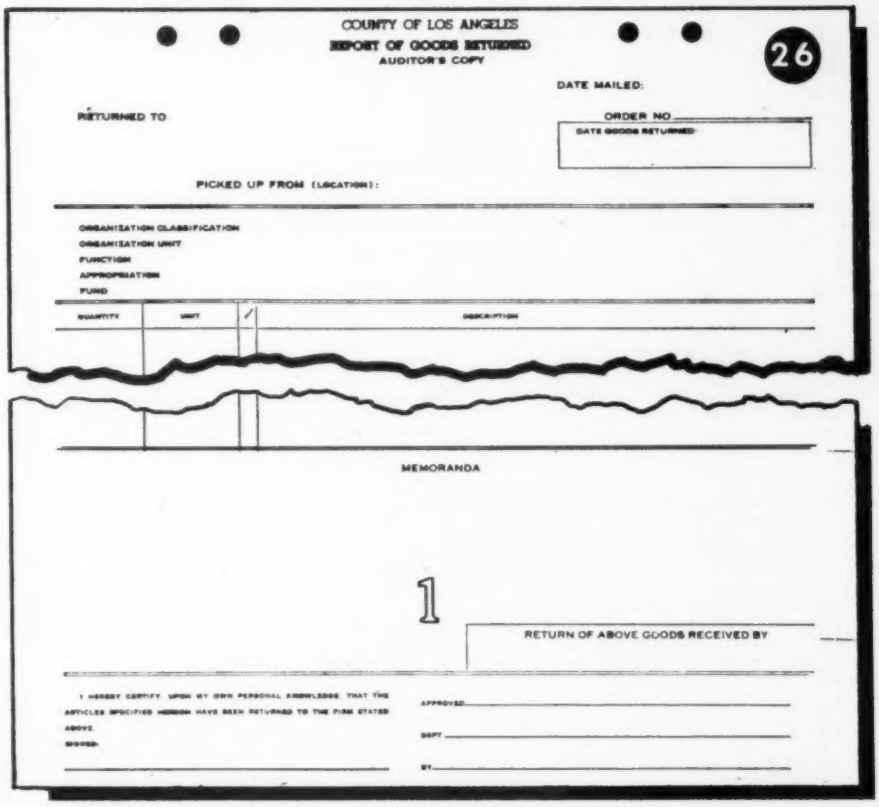
SHIP TO ..... Dept. ..... Per .....

23. *Phone Emergency Order.* One copy. Used by buyer for telephone orders, held in suspense for arrival of requisition, and filed with requisition.

24. *Phone Emergency Order.* Three copies. Used by Warehouse to ship stock items prior to receipt of formal requisition. One copy retained, two copies sent with merchandise, one of which is signed and returned.

25. *Rejection of Deliveries.* Weekly report made out by Receiving Clerk to advise Buyers of details of delivery rejections. Two copies. Original to Purchasing, duplicate retained by Receiving Clerk.

26. *Report of Goods Returned.* Five copies. Used to return merchandise to vendors. One copy sent to vendor as notice to pick up merchandise. Upon pick-up, one copy sent to Auditor's General Claims, one copy to files, one copy to Auditor's Stock Control Section, one copy to vendor with merchandise.



COUNTY OF LOS ANGELES
REPORT OF GOODS RETURNED
AUDITOR'S COPY

26

DATE MAILED:

RETURNED TO

ORDER NO .....
DATE GOODS RETURNED

PICKED UP FROM (LOCATION):

ORGANIZATION CLASSIFICATION
ORGANIZATION UNIT
FUNCTION
APPROPRIATION
FUND

QUANTITY	UNIT	✓	DESCRIPTION

MEMORANDA

1

RETURN OF ABOVE GOODS RECEIVED BY .....

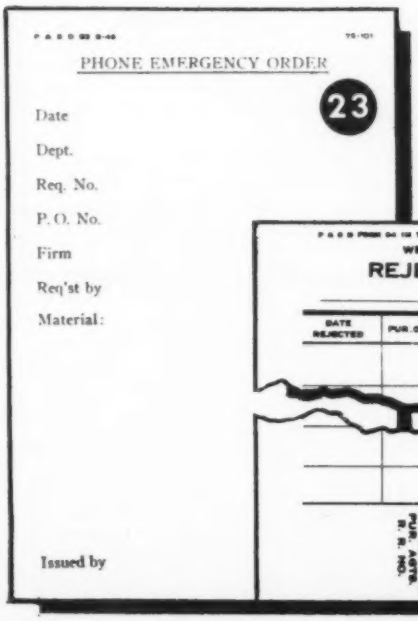
I HEREBY CERTIFY, UPON MY OWN PERSONAL KNOWLEDGE, THAT THE ARTICLES SPECIFIED HEREON HAVE BEEN RETURNED TO THE FIRM STATED ABOVE.

SIGNED .....

APPROVED .....

DEPT .....

BY .....



P. O. D. 99 8-46 TS-101

PHONE EMERGENCY ORDER

23

Date

Dept.

Req. No.

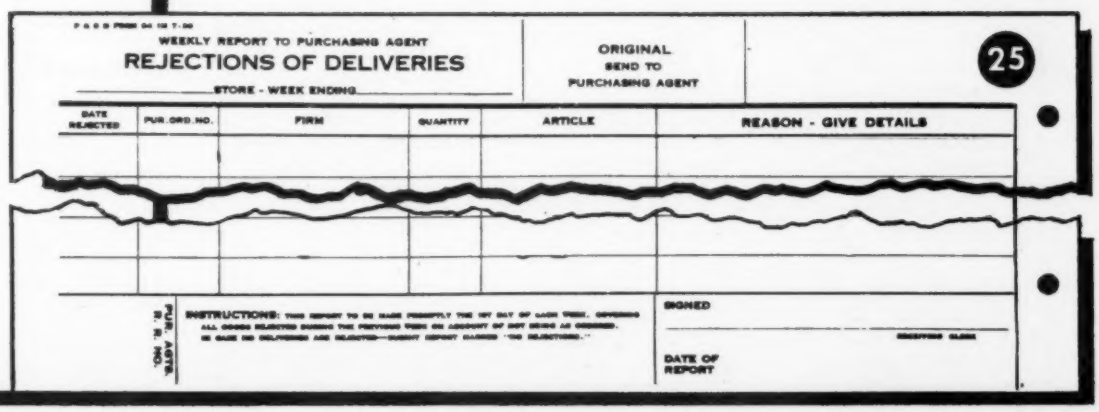
P. O. No.

Firm

Req'st by

Material:

Issued by



P. O. D. FORM 04 191 T-50

WEEKLY REPORT TO PURCHASING AGENT
REJECTIONS OF DELIVERIES
STORE - WEEK ENDING .....

ORIGINAL
SEND TO
PURCHASING AGENT

25

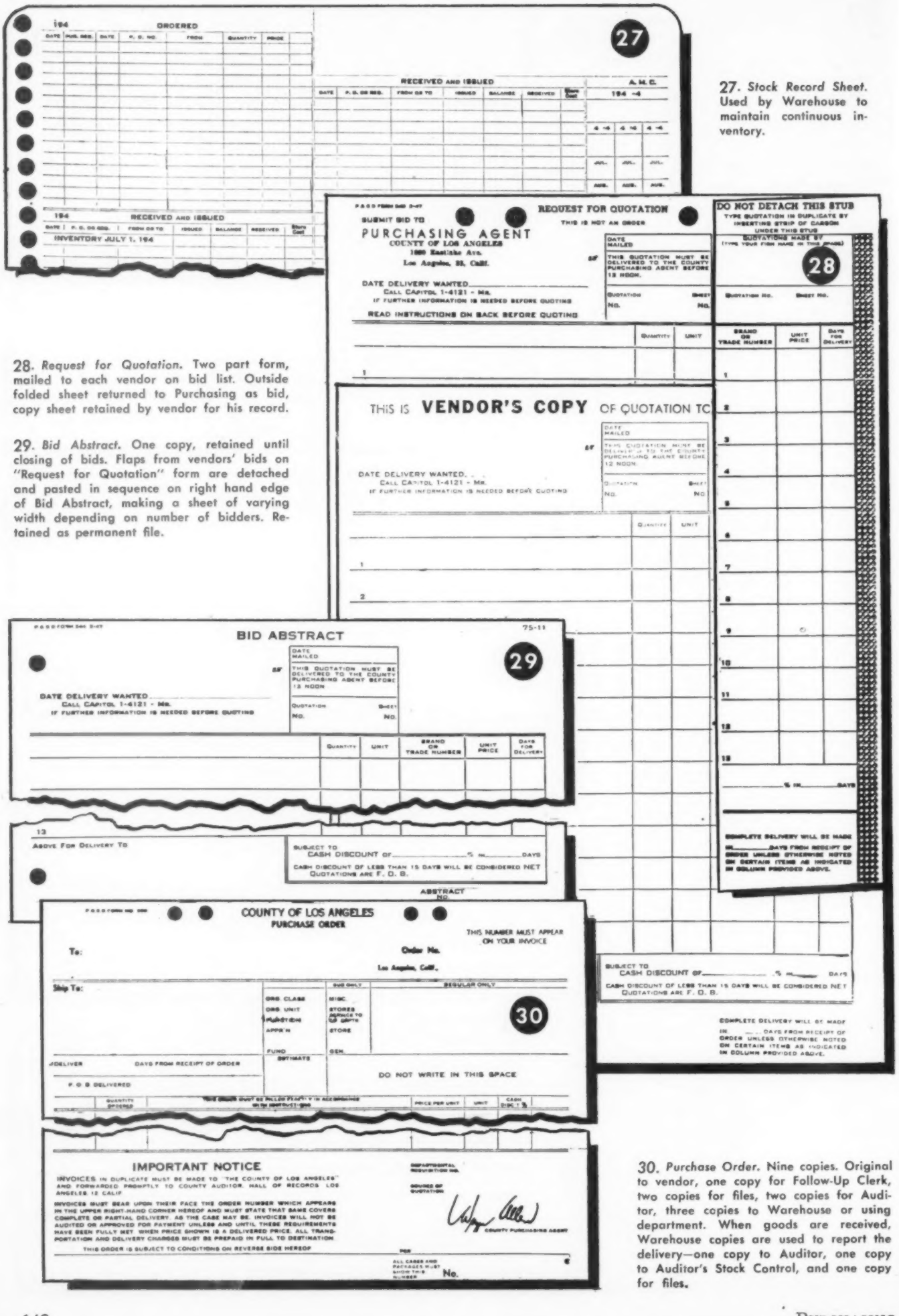
DATE REJECTED	PUR. ORD. NO.	FIRM	QUANTITY	ARTICLE	REASON - GIVE DETAILS

PLACE REJ. NOS.

INSTRUCTIONS: THIS REPORT TO BE MADE PROMPTLY THE 1ST DAY OF EACH WEEK, COVERING ALL GOODS REJECTED DURING THE PREVIOUS WEEK ON ACCOUNT OF NOT BEING AS ORDERED, OR NOT DELIVERED AND REJECTED—SUBSEQUENT REPORT CARRIES "NO REJECTIONS."

SIGNED .....
RECEIVING CLERK

DATE OF REPORT



27. *Stock Record Sheet.* Used by Warehouse to maintain continuous inventory.

28. *Request for Quotation.* Two part form, mailed to each vendor on bid list. Outside folded sheet returned to Purchasing as bid, copy sheet retained by vendor for his record.

29. *Bid Abstract.* One copy, retained until closing of bids. Flaps from vendors' bids on "Request for Quotation" form are detached and pasted in sequence on right hand edge of Bid Abstract, making a sheet of varying width depending on number of bidders. Retained as permanent file.

30. *Purchase Order.* Nine copies. Original to vendor, one copy for Follow-Up Clerk, two copies for files, two copies for Auditor, three copies to Warehouse or using department. When goods are received, Warehouse copies are used to report the delivery—one copy to Auditor, one copy to Auditor's Stock Control, and one copy for files.

ECONOMIC BASIS FOR CASH DISCOUNTS

A reader offers his views on a problem of timely interest and importance, invites further comment

THE purchasing agent for a middle western utility company, who prefers to remain anonymous, writes us as follows:

"You are aware of the general practice employed by the great majority of industries and other companies comprising their tributaries in allowing cash discounts for prompt payment of invoices. You are also aware that these discounts range from a low of ½ of 1% to a maximum of 5%. Naturally, every concern, regardless of size, makes every effort to earn cash discounts, as in many cases the annual aggregate from such deductions represents thousands of dollars.

"While there are many people who approve of this procedure, yet I venture to say that there are just as many who disapprove. The writer is one of this latter mentioned group and is taking the liberty of writing you regarding the subject, in hopes that your publication will give the subject editorial attention which in turn will create wide range interest.

"In the first place, it should be recognized that this practice of extending cash discounts is one that has been in existence for many years; just how long, I do not know. Its general acceptance is not necessarily attributable to the merits of the plan, but rather to the precedent that the plan has established. In fact, the plan has been in effect so long that its acceptance has been unquestioned from the standpoint of feasibility and practicability. In other words, the procedure is so deeply imbedded in our today's system of business conduct that its value is taken for granted. I, for one, critically question the practicability of the plan and would suggest augmented interest to the end that the plan be abolished.

"It can readily be seen that business, regardless of nature, operates on the basis of required net earnings, and that prices are established from these requirements. Now in the event that cash discounts are extended, the suppliers would necessarily include the amount equal to this discount in their established prices. In other words, the cost would include the amount equal to the cash discount whether it was billed on a Net 30 Day basis or Cash Term Discount basis.

"The whole procedure reminds me of the story of the salesman who had included an expense item of laundry work in his expense account. The sales manager questioned the item and advised the salesman that it would not be honored, and requested that he prepare another expense sheet. The salesman did so and informed the sales manager that while the questionable item did not appear on the revised sheet, the cost was included nevertheless.

"When you consider the great number of invoices being handled in the business world of today, you realize the great amount of work involved in processing these papers preparatory to payment. In the company which the writer represents, we handle thousands of bills a year, and each bill has to be checked from the standpoint of trade discount, extension, addition, and cash discount. These are essential operations, and the work involved in checking cash discounts alone is a major operation.

"As long as the billing price includes the predetermined requirements, then it appears that the cash discount plan serves no practicable purpose. Supplanting this system with a Net 30 Day plan would not only minimize clerical operations but it would be possible to reduce voucher issuances as well. Under the present system, it is necessary in many cases to issue several vouchers in the same month to the same companies to earn cash discounts; whereas, if a Net 30 Day plan prevailed, bills could be accumulated and vouchers issued only once a month.

"In writing you regarding this subject, it is suggested in the event that you concur in what I have briefly stated, that you invite contribution both pro and con on the subject from the readers of your fine publication."

The timeliness of this communication is attested by the fact that it was received just the day prior to the release of our December Survey of Purchasing Opinion, which dealt with the subject of cash discounts (December 1947 issue, page 97). It happens that our correspondent was not one of the thousand readers to whom this query had been addressed.

The results of that survey show, in the answers to Question 6 ("Do you feel that the practice of offering cash discounts is economically sound?"), that there is substantial support (15%) for the viewpoint expressed in this letter, though the great majority (85%) are lined up on the opposite side of the question. One of the comments by an opponent of the system echoes the argument set forth in this letter: "See no point in it except as an inducement for prompt payment . . . think that the bookkeeping required probably uses up all that is gained." Another comment supports the suggestion that tradition rather than sound economics is responsible for its acceptance. "In our business the cash discount is a trade practice as old as the industry", says the purchasing agent for an oil well equipment company.

The survey also reveals, in the answers to Question 1, that a good many companies have already taken steps toward the abolition of cash discounts, for 57% of the purchasing agents queried report that fewer suppliers are offering cash discounts, and 53% report that there has been a decrease in the amount of discount allowed by suppliers who have retained the practice.

In appraising the economic value of cash discounts, the basic objective of the plan should receive first consideration. It is primarily a credit and collection device—an incentive for the prompt payment of invoices, or, as one survey reply puts it, "an incentive for quick and efficient handling of invoices", which leads to the same result. Our correspondent recognizes this when he refers to "earning" the cash discount.

(*Please turn to page 292*)

LAW OF CONFLICTING TESTIMONY

When litigants disagree on the facts of a case, the court must base its decision on the testimony it believes to be true

● ***By Leo T. Parker***

A FEW days ago a reader wrote an unusually interesting inquiry, as follows: "For several years I have read your legal articles. In fact I have classified all of your law suits in my scrap-book and often refer to it when undecided on some legal point. I have noticed that in practically every law suit between buyers and sellers their testimony conflicts. Can you straighten me out on how or by what rules the courts decide who testifies to the truth?"

This reader presented a point of law that is frequently hard for the layman to understand. Since this legal question is timely, we shall review late and leading higher court decisions which illustrate all important phases of the law on this subject.

First, it is important to know that in all cases involving conflicting testimony the jury must carefully weigh all evidence and base its opinion or verdict on the testimony which it *believes* is true.

Jury Solves Riddle

Frequently the testimony of litigants is so contradictory that a jury must solve a riddle, so to speak. Generally speaking, the higher court will not disturb the jury's verdict.

For instance, in Seal v. Fitch, 183 S. W. (2d) 534, the purchaser sued the seller for damages claiming that the latter refused to give possession of the purchased merchandise.

The testimony showed that the seller advertised equipment for sale and a prospective purchaser answered the advertisement. A considerable number of letters passed between the seller and purchaser. Finally the seller came to take delivery of the merchandise.

The purchaser's testimony was that he arrived in town on Friday, closed the deal with the seller to purchase the merchandise for $6000, and that the seller turned over the keys to the building in which the merchandise was stored, but he later found that the locks had been changed, and he could not enter the building. The seller denied that he

ever "closed" a deal with the purchaser or delivered the keys to the building.

The jury referred to the correspondence and other testimony and decided that the purchaser was *not* testifying to facts and held the seller not liable in damages for breach of the alleged contract to sell the merchandise for $6000. The higher court approved the jury's verdict, and said:

"Upon sharply conflicting evidence the trial judge submitted to the jury the question of whether or not Fitch (seller) sold and delivered to plaintiff (purchaser) the described equipment. The verdict was in favor of Fitch (seller) and is amply supported by the evidence. Had it been in favor of plaintiff, his evidence was likewise sufficient to support the verdict."

Also, see Williams v. Ames, 70 N. E. (2d) 741, reported March, 1947. Here it was contended that the seller was not entitled to recover the full contract price for the value and installation of equipment because he did not comply with every detail of the contract. However, the jury decided that the contractor had "substantially" performed his contract and allowed him to recover the full contract price. The higher court approved the verdict.

And in this case the higher court clearly admitted that it would have approved the verdict of the jury had it decided in favor of the purchaser instead, as it did, of the seller.

Breeds Litigation

It is true that verbal agreements breed many law suits. Therefore, under all circumstances, parties to a verbal agreement should reduce it to writing. Failure to do so may result in expensive litigation, the

termination of which depends upon whose testimony the court believes.

For example, in Carozza v. Silver Hill Sand & Gravel Company, 53 Atl. (2d) 27, reported August, 1947, it was shown that a seller sued the Silver Hill Sand & Gravel Company for six cents a ton for sand and gravel sold and mined from his property.

The officials of the Silver Hill Sand & Gravel Company testified that they verbally agreed to pay three cents a ton for the material, whereas Carozza testified that it was verbally understood that he was to receive six cents per ton.

The jury listened to other testimony that the normal market price for sand and gravel in this locality was three cents a ton and allowed Carozza only three cents a ton for the material. The higher court approved the verdict, saying:

"The issue presented is largely one of veracity . . . It is certainly remarkable that if an agreement was reached either as to six cents or three cents, neither party took the trouble to write a letter confirming the verbal understanding."

Thus, it seems that the jury and, also, the higher court decided that if the seller had expected to sell his product at higher than the ordinary market price, he should have reduced the contract to writing and not depended on verbal testimony to prove his contentions.

Must Prove Signature

Modern higher courts consistently hold that before a court will consider private writings as evidence, their execution or signatures must be proved and their authenticity established.

In Williams v. Milling, Inc., 40 S. E. (2d) 633, reported February, 1947, one Williams sued an automobile dealer for conversion and the value of her automobile. During the trial the following written instrument was admitted into evidence: "I here by authorize Brannon Ray to sell my 1942 Plymouth car Motor no. 30414 Serial no. 11412999. (Signed) Mrs. S. J. Williams."

Since the dealer did not prove by handwriting experts that the signature was genuine, the higher court rendered a verdict against the dealer. The court said:

"The execution of authenticity of a private writing must be established before it may be admitted in evidence."

Under all circumstances the burden is on a purchaser to prove his contentions that a seller expressly or impliedly guaranteed the subject of sale.

Must Prove Contention

For example, in Kopelove v. Hinsch, 71 N. E. (2d) 518, reported January, 1947, the testimony showed facts, as follows: The Art Plate Manufacturing Company purchased an automatic screw machine from one Hinsch who has a junk yard and scrap business. The purchase price was $700 with a down payment of $100. About one week later the machine was delivered to the purchaser, at which time he gave his check for the balance due of the purchase price in the amount

of $600. Then the purchaser discovered that the machine was not complete, certain parts being lacking, and he stopped payment on the check. Hinsch sued the purchaser to recover $600 due on the unpaid check.

The purchaser contended that he had good and legal reasons to stop payment on the check because, first, there was an implied warranty that the machine was reasonably fit for the purpose for which it was intended, and second, Hinsch practiced fraud or deceit in failing to notify him before the sale contract was made that the machine was incomplete and unfit for operation or use.

During the trial the testimony showed that at the time the sale was made the purchaser had no particular use for the machine at the time and had no clear intention relative to the use to which the machine would be put.

Therefore, the higher court held that the purchaser must pay the $600 balance due and refused to hold that Hinsch had practiced fraud, or impliedly guaranteed the machine. This court said:

"The contention of the defendant (purchaser) that the plaintiff (Hinsch) warranted the machine to be complete in all its parts and suitable and adequate for the uses and purposes for which it was intended is not supported by the evidence. There is ample evidence to support the contention that the defendant knew the machine had been taken into the plaintiff's junk yard as scrap, that the machine was not complete, that additional parts would be needed to complete the machine and that the defendant was so informed at the time of the purchase."

No Guarantee

According to a recent higher court, the seller of merchandise or equipment does not impliedly guarantee that a purchaser will be successful in obtaining a license or permit to transact his business.

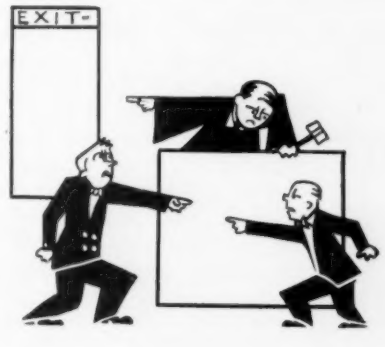
For illustration, in Griffin v. Williams, 202 S. W. (2d) 744, reported July, 1947, the buyer of a motor truck sued a dealer or seller claiming that the latter must take back the truck because he was unsuccessful in getting a license to operate it. The higher court refused to hold in favor of the purchaser, saying:

"There can be no doubt that the seller knew that the purchaser was buying the truck to operate; but assuredly there was no implied warranty on the part of the seller that the purchaser could obtain an operating permit with which to run the truck. The operator's permit had no direct connection with the sale of the truck."

Arbitration Valid

According to a recent higher court, a contract clause is valid which requires a buyer and seller to arbitrate their controversies, rather than go into court.

For illustration, in Almacenes Fernandez, S. A., v. Golodetz, 148



Fed. (2d) 625, it was shown that a chemical manufacturer contracted to sell a purchaser 1443 drums of caustic soda at $6.75 per hundred pounds. The contract contained a clause that in case of disagreement

the buyer and seller would settle their dispute by arbitration.

The purchaser sued the seller to recover the full purchase price, plus heavy damages, on the contention that the manufacturer had breached its contract by delivering 1443 drums of soda which were dented, rusted and unfit for shipment.

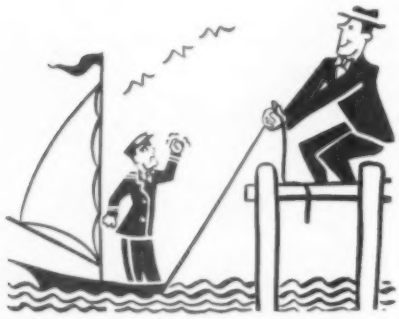
The higher court refused to render any verdict, and ordered the contracting parties to settle their controversy by arbitration.

Owner Liable

Arbitration agreements are applicable exclusively to parties who sign a contract. Hence, arbitration clauses have limited value, and do not affect implied circumstances.

For example, according to a late higher court decision, all merchandise and equipment is subject to attachment to secure payment for parts and repairs ordered or contracted for by an expressed or implied agent, although the owner of the equipment had no business transactions with the owner who furnished the parts or service.

For example, in Crofton Diesel Engine Company v. Martins, 171



Pac. (2d) 959, reported November, 1946, it was shown that a dealer filed a suit to attach a boat, and secure payment of $2,789 for parts on an internal combustion engine, and labor. The owner of the boat contended that he was not liable for payment because he *did not know* that the parts were furnished and the labor performed.

The testimony proved that he had loaned the boat to a friend named White, who ordered the repairman to do the above mentioned repair work. In view of this testimony the higher court awarded an attachment on the boat to secure payment of $2,789. This court said that although the owner had "loaned" the boat to White, and had no knowledge that he ordered the parts, repairs and labor, yet the owner was liable because it *must be* implied that White, the user of the boat, was the *legal agent* of its owner, and had *implied* authority to order the repair work. In other words, the repairman was not required to prove that White had any authority to order repairs for the boat. The fact that he was in possession of the boat, by authority of the owner, was sufficient to render the owner liable notwithstanding testimony to the contrary.

Chattel Mortgage

Irrespective of conflicting testimony over legal ownership of merchandise or equipment, a chattel mortgage registered or recorded in one county is valid and effective in all counties, in every state in the United States. Thus one who purchases mortgaged property may have no legal title to it, although he testifies that he had no knowledge that it was mortgaged.

See Universal Finance Company, Inc., v. Clary, 41 S. E. (2d) 760, reported April, 1947, where it was shown that a chattel mortgage on equipment was executed in the state of Maryland where the mortgagor and purchaser resided. This mortgage was recorded in this state.

Later the holder of the mortgage sued one Clary to recover possession of the equipment which had been removed to North Carolina.

Clary claimed that he had no knowledge of the mortgage in Maryland when he purchased the equipment in North Carolina, but the higher court held that the holder of the mortgage could take possession of the equipment from Clary.

No Title to Stolen Automobile

Under *no* circumstances may a person who purchases stolen merchandise have legal title to it. See Grass Company, Inc., v. Adrian Shepherd, 200 S. W. (2d) 936.

The testimony showed that one Adrian Shepherd was recently discharged from the United States Army. He went to Cincinnati, Ohio, where he purchased from an automobile dealer a Plymouth automobile and received the necessary papers from the dealer, and executed all necessary papers required in such transaction. Following the purchase of the automobile he deposited the documents, including his discharge, in a pocket on the door of the automobile. That same night Adrian Shepherd's own brother stole the car. The brother represented to one Kirkland that he was Adrian Shepherd and produced documents that he had taken from the door pocket of the car. Kirkland bought the car.

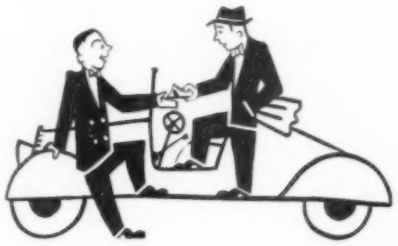
Later Adrian Shepherd sued to recover possession of the stolen automobile from Kirkland. The higher court ordered Kirkland to return the car to Adrian Shepherd, saying:

"The buyer of stolen chattels acquires no title, however innocent he may be."

For comparison, see People's Trust Company v. Smith, 215 N. Y. 488, 109 N. E. 561, 562, L.R.A. 1916B, 840, Ann. Cas. 1917 A, 560. The facts were that one Geo. F. Stainton had a nephew by the same name. He had in his possession a $3,000 bond which he left with his nephew, who deposited it in a safe in his office. The nephew later purloined the bond and disposed of it to a supposedly innocent purchaser.

In holding that Geo. F. Stainton could recover the bond the court said:

". . . There was nothing about them to indicate that any transfer was contemplated. It was possible, of course, that the custodian might personate the mortgagee and forge an assignment. The same thing would have been possible, though perhaps more difficult, if the names had been different. It is not to be overlooked that the nephew's act, though he used his own name, was none the less a forgery. . . . The



mere possession of a chattel with the permission of the owner does not enable the possessor to transfer a title."

Cash Is Implied

Modern higher courts consistently hold that if a seller does not agree to sell on credit, the law implies cash payment. Therefore, a seller retains legal title to merchandise, not specifically sold on credit, until the purchaser pays the full sale price.

For example, in Sykes v. Carmack, 202 S. W. (2d) 761, reported July, 1947, the testimony showed facts, as follows: One Young purchased an automobile from a dealer named Sykes for the cash consid-

eration of $1,023. The dealer took a check and told Young he would not make up the papers until tomorrow when the check cleared. Young had to get his men and take them to work and for that reason he wanted the car at once. The dealer let Young drive out the car. That same night Young sold the car to another dealer who had no information that there was any question about the title of the car. The following day Young's check was presented to the bank for payment, which was refused for the reason that Young had no account in the bank on which it was drawn.

Sykes sued the dealer who had purchased the car, to recover possession of the automobile without paying any money to the dealer. The court said:

"There is no question but that the check was accepted and the car delivered. . . . The sale was supposed to be for cash, and there was no occasion for a reservation of title in any papers to be prepared the next day after cashing the check."

For comparison, see Home Company v. Wray, 6 S. W. (2d) 546. Here the contract *reserved* title to an automobile in the seller until payment of the purchase price. This court held that if a contract of this nature is lawfully recorded, any one who purchased the automobile must return it to the seller who held the contract.

Proves Breach

Obviously, in all of the above explained cases both litigants offer conflicting testimony. But in every case the courts hold that the one who *proves* that he has legal title may repossess the subject of controversy. In cases of this nature it is not a matter of a jury believing testimony of one litigant and disbelieving the testimony of another. The litigant who proves that he has a lawful and legal right to a favorable verdict will win the suit.

In all cases involving breach of sale contracts the party will win the suit who proves that (1) a valid contract existed; and (2) the other party breached this contract. In cases of this nature where conflicting testimony is given, no law can be referred to in order to determine the legal rights of the contracting parties. The jury will base its verdict on *believed* testimony, where a verbal contract is in controversy. On the other hand, in written contracts, the various clauses of the written contract will be interpreted, and no reliance will be placed on verbal testimony.

Also, it is well to know that if one contracts to do any definite thing, he can not avoid liability for his breach although he has included in the contract various reasons why he may not be able to fulfill the terms of the contract.

Thus, the law is well settled that when a seller contracts unconditionally to do an act, or to make deliveries of merchandise, he takes all risks of being unable to perform the obligations, except where it is rendered impossible by an Act of God or the Public Enemy, and by reasons beyond his control *as clearly provided by his contract.* See Bunn v. Prather, 21 Ill. 217; Bacon v. Cobb, 45 Ill. 47; and Deibler v. Bernard Bros., 53 N. E. (2d) 450. All of these higher courts upheld this law.

Also, see Industrial Company v. Sunflower Company, 71 N. E. (2d) 199, reported March, 1947. In this case the Industrial Company sued the Sunflower Company for $200,000 alleging breach of contract by the latter to supply agreed products.

The Sunflower Company did not own any products and they depended for their supply upon other producers. They had entered into contracts with sellers to supply the products. Hence the Sunflower Company depended upon their contracts with other companies to secure merchandise for the Industrial Company. As time passed, these contracts were cancelled and the Sunflower Company could not deliver the agreed merchandise to the Industrial Company.

In holding the Sunflower Company liable for $200,000 damages, the lower court said:

"If the defendants (Sunflower Company) wished to avoid liability because of these conditions, they should have provided against them by the provisions of the agreement with the plaintiff (Industrial Company)."

Damages Equal Profits

According to a recent higher court, a purchaser who breaches a sale contract is liable to the seller for damages equal to the profits the seller could or would have earned.

For illustration, in Palmquist v. Murphy, 73 N. E. (2d) 644, reported September, 1947, a purchaser entered into a contract with a seller to supply sand and gravel. After the seller began to make deliveries of the sand and gravel the purchaser refused to accept the deliveries. The seller sued the purchaser for damages. This court held the purchaser liable and said that the basis for calculations of damages because of purchaser's refusal to accept the materials and complete the contract was established by testimony showing the cost per square yard of producing and hauling the materials plus the profit.

In other words, the higher court held a purchaser liable to the seller for the profits the latter would have earned had the purchaser accepted deliveries of all materials purchased under the terms of the contract.

Definition Omitted

According to a recent higher court a purchaser may recover damages from a seller *only* when the purchaser proves that the seller actually breached a specific clause or word in the contract.

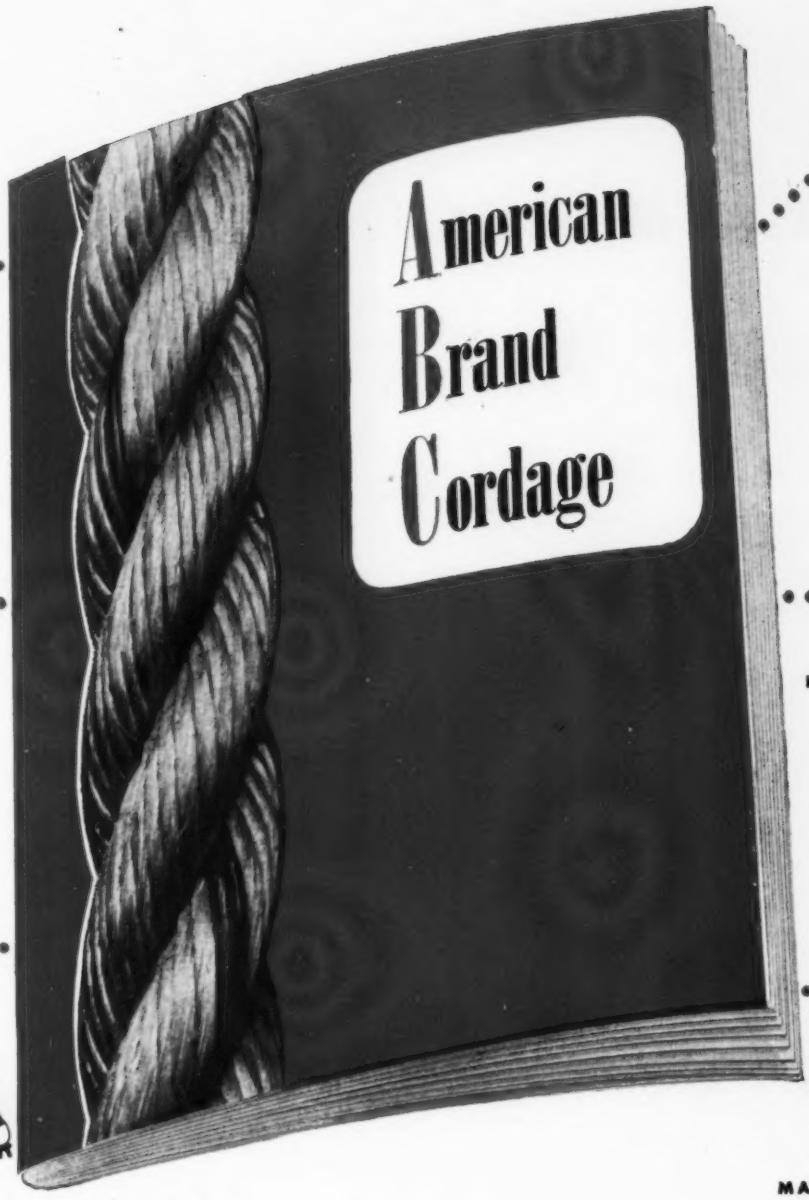
For illustration, in Livingston v. Fuhrman, 37 Atl. (2d) 747, it was shown that a person purchased a watch. The seller guaranteed that the watch was waterproof. In a short time the watch was rusty and would not operate. The purchaser took the watch to the seller, who sent the watch to the factory and later learned that the watch was in such a condition it could not be repaired. The purchaser sued the seller to recover the purchase price of the watch.

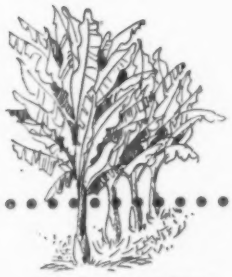
It is interesting to observe that the higher court refused to hold the watch purchaser entitled to a verdict and said:

"We think that the mere proof that the watch had rusted and was not operating at the end of six months did not sustain the burden of proof. There was no evidence of the meaning of the word 'waterproof' as applied to watches and we cannot assume that waterproof when used to describe a watch warrants the watch to be waterproof regardless of conditions and treatment."

ROPE USES

NEW STRENGTH CHART





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SURFACE GRINDER

COMPACT 6 x 12 x 10½ surface grinder is a self-contained unit with a two-speed ball-bearing spindle, motor driven by a ¾ hp motor and completely equipped with dust guards. It uses a standard 5" x 10" magnetic chuck, 7 x ½ x 1¼" wheel, and standard wheel adapter, leaving ample clearance room. The hand operating wheels are centrally located for ease of operation and visibility. *H. Leach Machinery Co., Providence, R. I.*

WATER-LESS HAND CLEANER

CHUM waterless hand cleaner is said to have skin softening and healing qualities of fine hand lotions and to remove mimeograph, multilith and printing inks, as well as all forms of grease, grime and paint in a few seconds without the use of water. It will not irritate hands or effect nail polish, maker states. The cleaner comes in half-pound and pound sizes. *Crossland Manufacturing Co., Toledo 6, O.*

FOLDING STACKING PALLET

STAK-RAK is an aluminum pallet that is said to make possible the palletizing and stacking of loads which are crushable or subject to flotation, in transit or storage. It has four tubular columns at the outside corners for supporting tiered loads. The columns fold down to the top surface of the pallet. The dimensional load is 48" x 36" x 4' high. Load capacity is 3,000 lbs. per unit. Weight when empty, 53 lbs. *Tobey International Co., 7005 So. Western Ave., Los Angeles, Calif.*

VENTILATOR WITH STEP BEARINGS

SPINNER type roof ventilator is equipped with step type ball bearings, assuring easy propulsion of unit from the slightest breath of air, it is said. Spinning blades create a vacuum, drawing out hot air, gases, fumes, etc. Contaminated air is emitted without permitting entrance of rain or snow. Spinner is mounted on a square base which can be cut to fit roofs of any pitch. *Warner Ventilator Co., La Grange, Ind.*

PRECISION NOTCHER

DI-ACRO notcher is described as a precision shearing unit that will rapidly and accurately cut notches in sheet materials, thereby eliminating dies for this specialized application. Manufacturer states that a 90-degree notch of any size, within the capacity of the machine can be cut in one operation either at the corner or in any position along the edge of a sheet. Cutting range includes plastics, fibre, mica, leather, rubber, heavy gauges of aluminum, cobalt steel, chrome, molybdenum, leaded brass and stainless steel. Catalog available. *O'Neil-Irwin Mfg. Co., 305 Eighth Ave., Lake City, Minn.*

CORROSION-RESISTANT STAINLESS STEEL VALVE

STAINLESS steel valve is designed for use in the chemical, processing food industries, and wherever the service calls for corrosion-resistant valves. It is manufactured in ½" to 2" sizes, and is outside screw and yoke type, having bolted bonnet, tapered wedge, and screwed ends. All materials in contact with the fluid are of low-carbon type 316 stainless steel. Packing and gaskets are corrosion-resistant. Yoke bushings renewable. *The Ohio Injector Co., Wadsworth, O.*

PORTABLE WATCHCLOCK

SPARTAN Model A watchclock has full-jeweled Waltham movement that is key-wound, with no protruding stem to break off or bend. When the watchman inserts a recording key, the face is in reading position. The face is protected, yet sufficiently exposed for quick, easy reading. Other features are: black harness leather case and straps; pouch reinforced at points of wear and specially cushioned to prevent breakage if dropped; pinch-proof keys. Literature available. *The Chicago Watchclock Corp., 1522 S. Wabash Ave., Chicago 5, Ill.*

"ALL-WEATHER" MANILA ROPE

DISTINCTIVELY dark brown in color, Amco treated "all-weather" manila rope is made from high grade manila fibre, impregnated with exclusive treatment to withstand the sun and water, and resist fungus growths. It weighs the same as regular first grade rope. Samples available. *American Manufacturing Co., Noble & West Sts., Brooklyn 22, N.Y.*

DRUM-CARRYING ATTACHMENT

ILLUSTRATION shows Drum-Karrier accessory for making drum handling system out of any monorail hoist, crane or chain fall. It features one-man operation and fits all standard size drums. Positive tilt locks hold drum in vertical position and permits easy, controlled tilting to mix or dispense contents over receiving tank. Used in chemical, food processing, petroleum, metal working, etc. industries, maker states. Literature available. *Falstrom Co., Passaic, N. J.*

(*Please turn to page* 152)

EATON PERMANENT MOLD GRAY IRON CASTINGS

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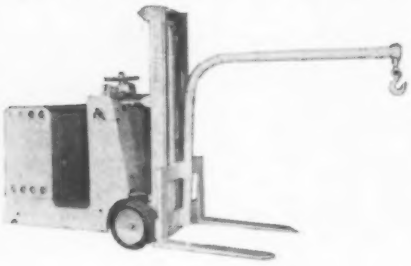
CRANE ARM FOR FORK TRUCKS



ILLUSTRATED crane arm attachment, which fits all models of Lewis-Shepard power fork trucks, is constructed of tubular steel and has a minimum length of 24". It is built in standard models and in increments of 6" to a maximum length of 72". It can be mounted between two forks, and may be operated as a separate unit or in combination with the forks. Attachment permits operator to reach into vats, gondola cars, and presses, and to handle warp beams in and out of looms. *Lewis-Shepard Products, Inc., 301 Walnut St., Waertown 72, Mass.*

NEW HYCAR AMERICAN RUBBERS

DESIGNATED Hycar OR-25 EP and OR-25 NS, two new Hycar oil resistant rubbers are said to have superior processing characteristics over the regular Hycar OR-25. OR-25 NS is non-staining and non-discoloring, making it suitable for the fabrication of light colored products. Principal advantages of the rubbers are described as: they band on the processing mill rolls quickly; better extrusion characteristics; excellent high temperature mixing; better fusion and mold flow characteristics; increased building tack for laminated products. *B. F. Goodrich Chemical Co., Rose Bldg., Cleveland 15, O.*

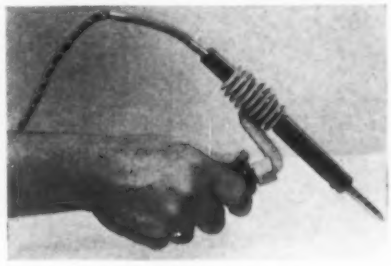
NON-MAGNETIC BALL BEARING

DESCRIBED as the smallest fully-ground non-magnetic ball bearing in the world, the Micro was developed for electrical, electronic, geophysical and similar applications requiring freedom from magnetic influences, as well as for general use where its non-corrosive properties are important. It is made to the standard dimensions 1/4" OD x 5/64" bore x 3/32" width. Material is beryllium copper, precipitation hardened to about 42 Rockwell C and a tensile strength of 200,000 psi. Bearings are offered in Class 1 and Class 5 precision tolerances and are of full-race design for maximum capacity. *New Hampshire Ball Bearings, Inc., 5 Micro Circle, Peterborough 1, N. H.*

WELDING ROD PRODUCES Rc67 OVERLAYS ON COPPER

WITH the use of a gas welding rod known as "Eutec-Rod" 188, having a maximum hardness up to 67 Rc, deposits of beryllium copper followed by heat treating or cold working are no longer required to produce maximum overlay hardness on copper, where hardness is the sole requirement, it is claimed. It is described as the only alloy which can produce overlays of such extreme hardness on copper, which it does as deposited, in a single pass, requiring no additional heat treatment. Special applications include bearings, gears, marker teeth, centrifugal pumps, globe or gate valves and other machinery where corrosion-resistance is important. *Eutectic Welding Alloys Corp., 40 Worth St., New York 13, N. Y.*

ELECTRIC SOLDERING IRON

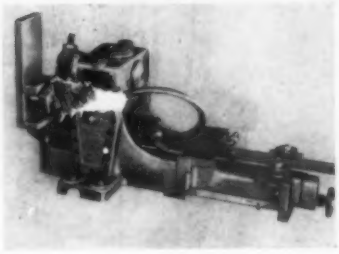


COUNTERPOISED electric soldering iron has a standard Vulcan plug tip heating head, to which is attached an aluminum shank with a wood handle, at an angle of 100 degrees. Angle of attachment is said to keep the iron in perfect balance, and make it possible to reach difficult spots. The handle is 5" long, 1⅜" thick, and countoured for easy grip. Iron is equipped with 6 ft. of heater cord and wire stand. Heating element and plug tip are replaceable. It measures approximately 9½" from end of tip to wire connection and comes in five standard tip diameters, ¼ to ⅞". Weights are ⅝ to 2⅜ lbs. *Vulcan Electric Co., 86-90 Holten St., Danvers, Mass.*

SMALL HYDRAULIC POWER UNIT

COMPACT, portable hydraulic power unit, capable of supplying three gallons per minute at 1000 psi, can be used on hydraulic wheel pullers, shaft extractors, portable elevators, arbor presses, vises, etc. Known as "Paul Bunyan Jr.", the unit includes in an integral structure a 17 gal. storage tank with foot mountings, electric motor, V-belt connected gear pump, and 4-way operating valve. The assembly occupies space 16⅛" wide by 28" long by 29" high. Normally supplied with a 1½ hp, 1800 rpm, 220 or 440-volt motor, it can be used with a 2½ hp, 1200 rpm air-cooled gasoline engine for out-of-doors use. *Hydro-Power, Inc., Belmont & Sheridan Aves., Springfield, O.*

HYDRAULIC STOCK FEED

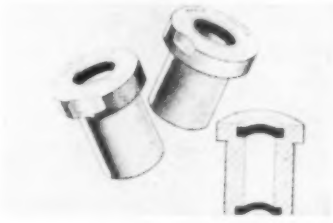


MODEL D-600 hydraulically-operated stock feed is said to be suitable for use on almost any punch press. The unit handles all stock up to 4" width and 3/32" thickness and feeds any desired length from 0" to 5", within .003" to .005" every time, it is claimed. Self-contained, the unit is mounted on the bolster plate of the press and can be located to feed from the left, right, front or back. Overall dimensions are 20" long x 10½" wide x 10¼" high. Bulletin available. *Haller Machine & Mfg. Co., 7940 Tireman Ave., Detroit, Mich.*

MERCURY LAMP FOR GENERAL LIGHTING

A-H5 mercury lamp for all general lighting applications in which mercury lamps are desirable replaces the former A-H5 and C-H5 lamps. Used with a transformer, it may be used in all presently existing equipment as there is no change required in auxiliary or fixture dimensions. The inner arc tube has been redesigned to produce greater efficiency, longer life and to permit burning in any position, maker states. The lamp is rated 250 watts and has a maximum outside length of 8". *General Electric Co., Nela Park, Cleveland 12, O.*

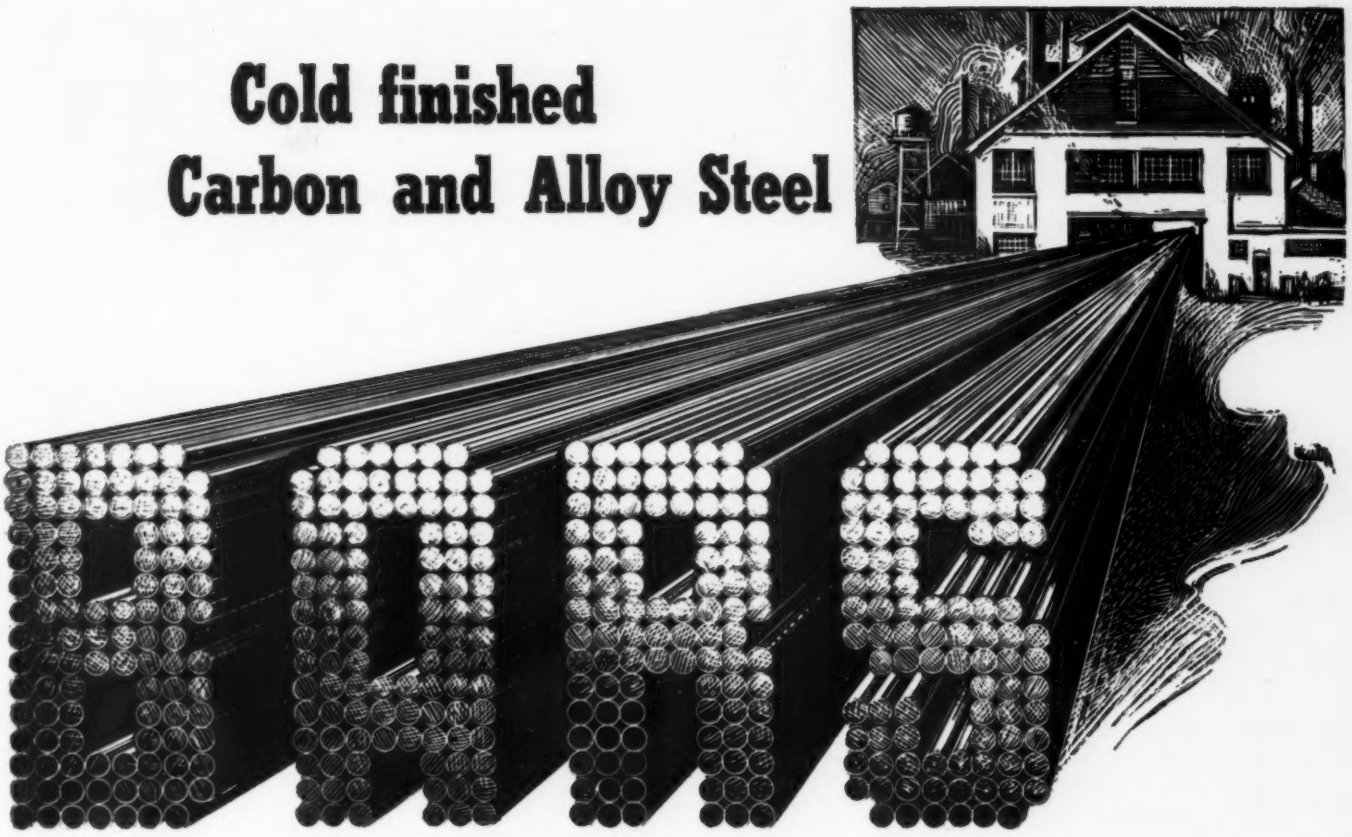
CARBIDE-INSERTED DRILL JIG BUSHINGS



TUNGSTEN carbide inserts at the two points of wear in drill jig bushing as shown in cut-away drawing above are claimed to give longer life and greater accuracy for a longer period of time. Hardened steel ring inserted above the top carbide ring is said to protect both the carbide and the drill against shock of impact. The bushings are of special alloy steel, hardened. They are manufactured to the dimensional standards of the American Standards Assn., and require no change in the drafting room or in tool design, according to the maker. Literature available. *W. F. Meyers Co., Bedford, Ind.*

(*Please turn to page* 154)

Cold finished Carbon and Alloy Steel



to standard specifications

DO you need bars--cold finished bars--either carbon or alloy steel?

If so, get in touch with the nearest Youngstown district office. Tell us your requirements for cold finished bars.

Facilities for producing cold finished carbon and alloy steel bars at Youngstown have been substantially expanded, and we are now supplying bars in a wide range of sizes, either in coils or straight lengths.

Youngstown cold finished bars are drawn to standard tolerances, have uniformly smooth, bright finish. Machinability is excellent, due to close chemical and metallurgical control. Standard specifications as to toughness, ductility, tensile strength and yield strength will be fully met on every order.

Our representative will call on you promptly. Our metallurgical and chemical divisions are available at all times and will make every effort to serve you.

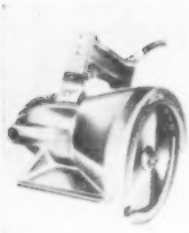
QUALITY V YOUNGSTOWN SERVICE

Youngstown

THE YOUNGSTOWN SHEET AND TUBE COMPANY General Offices — Youngstown 1, Ohio Export Office-500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - TIE PLATES AND SPIKES. ELECTROLYTIC TIN PLATE - COKE TIN PLATE - PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS -

6" and 8" HAND SAWS



MODEL 160 electric hand saw, shown here, is equipped with a 6" diameter blade, cuts to a maximum depth of 2-1/32" and weighs 10 lbs., 8 oz. No-load speed is 4000 rpm. Model 180 has an 8" diameter blade, and is equipped with an adjustable shoe for setting the blade to any angle from 0 to 45 degrees, and adjusting the depth of cut from 1" to 2-5/16" maximum straight cut. Maximum depth of cut at 45 degrees is 2¼". No load speed is 3800 rpm.; net weight 15¾ lbs. Saws are designed with blade on the left to enable operator to hold the tool in one hand in a normal, comforable, sawing position. Motor on both models is universal 110 volt ac-dc type. *Bradford Machine Tool Co., Cincinnati, O.*

CUSTOM-ENGINEERED INDICATING INSTRUMENTS

CUSTOM - Engineered indicating instruments are now being produced in sample lots for the radio, electrical and electronics field in the Marion Short Run Shop. Special order instruments are manufactured to customers' specifications in sample lots, relieving the user of improvising his own measuring and testing devices. The user can order through his jobber or direct, after filling out a specification questionnaire. Quotations are furnished within two days and the order is shipped approximately two weeks after receipt. *Marion Electrical Instrument Co., Manchester, N. H.*

OPTICAL COMPARATOR

PROJECTOR and optical comparator is suitable for continuous quantity inspection and for the performance of delicate assembly operations on minute parts as occur in the watch, instrument, and electronic tube industry. The work stage and observation screen are close to each other, within the operator's easy reach and line of vision. Stage and screen are unobstructed, with lamphouse overhead. When used for shadow images it offers following magnifications: 10, 20, 31¼, 50, 62½, and 100X. *George Scherr Co., 200 Lafayette St., New York 12, N. Y.*

PROTECTIVE COATING FOR METAL STRUCTURES

"DUM DUM for Metal" is described as a tough but elastic coating material for "weather-proofing" outdoor metal surfaces on storage tanks, transformers, water towers, etc. It is said to provide a durable coating many times the thickness of paint that makes the surface to which applied impervious to measurable vapor and moisture transmission, acid and alkali gases and fumes and other similar causes of deterioration. Dependable protection against weathering for 10 years or more is claimed. *The Arco Co., 7301 Bessemer Ave., Cleveland 4, O.*

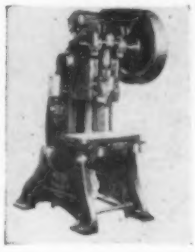
BRONZE GATE VALVE

FEATURE of bronze gate valve for 200 lb. service, Fig. 270-U, is the newly designed seating combination—a high tensile strength bronze wedge seating against monel metal seat rings of a hardness about 2½ times that of valve body bronze. Seat rings are expanded into body and are equivalent to integral faces. Wear is taken by the bronze wedge which can be replaced by slipping it off the stem. Additional features claimed are large spindle threads, deep stuffing box, rugged bonnet and heavy bonnet ring. Available in sizes ¼" to 2". *Jenkins Bros., 80 White St., New York 13, N. Y.*

SUPPLEMENTARY FRICTION PROOFING OIL

WYNN'S friction proofing oil is of supplementary type for use with regular lubrication oils and greases. It is said to be specially compounded for the protection of bearings, cams, wrist pins, cylinder walls, gears and all other friction points in motors and machinery. When used in internal combustion engines, crankcase, transmission and differential, maker states it assures an increase in horsepower up to 20% and reduces operating temperatures and friction wear to a minimum. *Wynn Oil Co., San Gabriel, Calif.*

INCLINABLE PUNCH PRESS

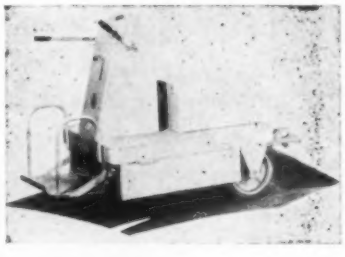


THIS 38-ton capacity, open back, inclinable punch press is equipped with a variable speed drive, and can serve as a tool-room and test-run press or as a production press, according to maker. In the tool room the press can be used for shearing-in of dies and punches and for die try outs. The large shut height and bolster plate area make it adaptable to certain notching, forming and die-casting trimming operations where plenty of room is required. Known as Model 38X it has a distance between gibs of 17", a bed area 18" by 26", and a throat depth of 12". *Walsh Press & Die Co., 4709 W. Kinzie St., Chicago 44, Ill.*

DEVICE FOR MEASURING MOISTURE CONTENT

SIMPLE dewpoint apparatus for measuring the moisture content of air and gases at approximately atmospheric pressure is said to give results comparing satisfactorily with more complicated methods. It consists of an outer container with inlet and outlet connections and a a highly polished outer surface visible glass window, an inner container having through the window, and a thermometer. Quick checking of dewpoints as low as minus 76 degrees C is claimed for the device, through the use of acetone and dry ice mixture. *Pittsburgh Lectrodryer Corp., P.O. Box 1765, Pittsburgh 30, Pa.*

ELECTRIC TOW UNIT



LIGHTWEIGHT electric tow unit, known as the Electric Pony Express Orange Tow Unit, is said to combine extreme maneuverability and rugged performance with low operating and maintenance cost. It has a turning radius of 72", allowing it to turn into a 62" aisle. Capable of hauling 10,000 lbs. of trailer loads, it can be used in elevators, lofts, and warehouses where light construction makes operation of heavy trucks hazardous. Overall dimension, including hitch, 75". Six mph. speed can be attained with 24-volt battery, 8½ mph. with 32-volt battery. *Rocky Mountain Steel Products, Inc., 1360 Wall St., Los Angeles 15, Calif.*

(*Please turn to page* 156)

MACHINE TABLE PROTRACTOR

QUICK and accurate method of obtaining an angular locating or working surface on milling machine or other machine tables is said to be provided by this machine table protractor. The graduated index plate includes a vernier scale to accomplish accurate settings within 5 minutes of angle. The tool is constructed of hardened and precision-ground steel parts and is designed to accommodate standard size tongues to fit conventional T-slots. Also available to fit special slot requirements. *The Taft-Peirce Mfg. Co., Woonsocket, R. I.*

RELIEF FOR INDUSTRIAL RASHES

INDUSTRIAL rashes, itching of poison oak, poison ivy and other pruritic conditions are said to be given prolonged relief with Dermesthetic Ointment-Cutter. It combines Benzyl Alcohol, Phenol and Benzocaine to obtain triple-action control of itching. It is described as valuable in retarding the spread of grease-soluble irritants, such as rhus toxins and certain oil-soluble industrial materials, which in dissolving tend to spread and increase the area of the rash. The ointment is greaseless and will not stain skin or clothes, maker states. Samples and literature available. *Cutter Laboratories, Fourth & Parker Sts., Berkeley 1, Calif.*

WELDING OUTFIT CARRYING CASE

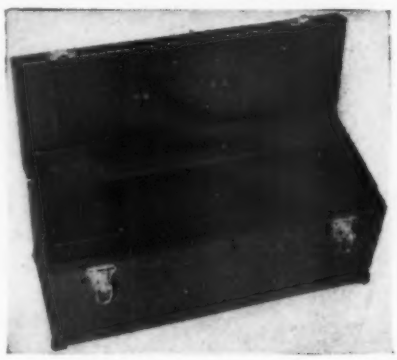


ILLUSTRATION shows carrying case for transporting a welding or cutting outfit to the job in an orderly and compact manner, with provision for torch, tips, regulators, etc. The case is of 22 gauge cold rolled steel with flush double lock seams. Reinforced ends and cover are paneled for rigidity and strength. Other features are: ripple exterior finish of baked enamel; handle-equipped lift-off tray; extra-heavy duty bolt catches and a padlock hasp. Net weight 10½ lbs. Dimensions: 22" long, 8" wide and 9" deep. *Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.*

(*Please turn to page* 158)

Quickest, easiest way to drill a 1/2 inch HOLE

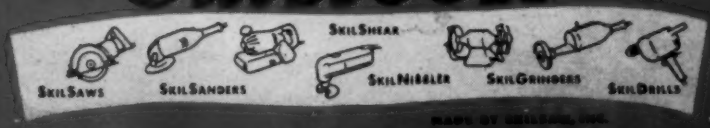
SKILDRILL IT . . .

with model 80 SKILDRILL

It's a labor-saving SKIL DRILL* . . . gives you the speed you need for all ½ inch drilling in steel, 1 inch in wood. And back of its excellent performance are sound engineering, good design and a quarter-century of outstanding SKIL TOOL service. Whether you buy this drill or any one of 19 other SKIL DRILLS, you'll find you've never bought a better tool.

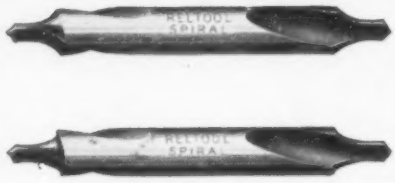
ELECTRIC PNEUMATIC

SKILTOOLS



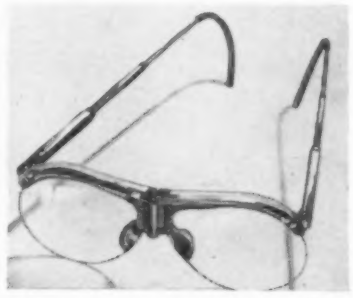
SKILSAW, INC., 5033 Elston Ave., Chicago 30, Ill.
Factory Branches in Principal Cities
In Canada: SKILTOOLS, LTD., 66 Portland Street, Toronto, Ontario
* SKIL DRILLS are made only by SKILSAW, INC.

CENTER DRILL AND COUNTERSINK



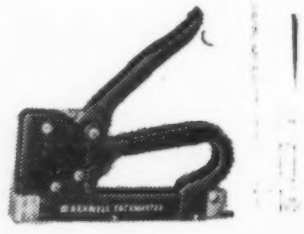
SPIRAL center drill and countersink is said to have prolonged life and to reduce frequency of re-grinding. It has a 22° spiral, which results in a shearing cutting action and cuts a smoother hole, according to manufacturer. Larger, more open flute results in faster, easier chip clearance, it is said. Fillet at the point where the 60° countersink angle meets the tip is claimed to remove stress and strain. The tool is furnished with ground flutes, and overall length is slightly greater than conventional center drills. *Reltool Corp., Milwaukee, Wis.*

FOLDING GOGGLE



TRANSPARENT goggles with undistorted vision and high impact-resistance, known as Sto-Aways, are collapsible to cigarette-pack size. The stainless steel temples telescope to 1/3 normal length. Lenses are easily interchanged and are fabricated from Plexiglas. Frame is made of Plexene M, a new thermoplastic molding powder. *Watchemoket Optical Co., Inc., Providence, R.I.*

IMPROVED TACKMASTER



REDESIGNED "trigger fast" Tackmaster has a stronger and more durable handle which increases the driving power of the staples, according to the manufacturer. Featured also is an automatic lock which holds the handle in a position so that the tool fits into the operator's pocket. The Tackmaster drives staples of 3/16" or 5/16" legs along narrow edges and in inaccessible places. It is complete with tack (staple) remover. *Markwell Manufacturing Co., 200 Hudson St., New York, N. Y.*

(Please turn to page 164)

WESTERN UNION

1201

JOSEPH L. EGAN
PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

SS OF SERVICE
is is a full-rate
gram or Cable-
unless its de-
ed character is in-
ted by a suitable
bol above or pre-
ing the address.

hing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

BUFFALO NEW YORK

MOTOR USERS ANYWHERE U S A

NEW LIFELINE MOTORS FROM 1 TO 15 HP NOW AVAILABLE IMMEDIATELY

FROM STOCK IN STANDARD TYPES STOP THIS ACCOMPLISHES FIRST

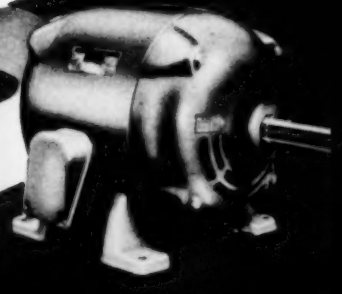
OBJECTIVE WESTINGHOUSE $20,000,000 MOTOR EXPANSION PROGRAM

TO MEET YOUR NEEDS

MOTOR DIVISION WESTINGHOUSE ELECTRIC CORPORATION

. . . A REPORT TO INDUSTRY

ON ELECTRIC MOTORS IN GREATEST DEMAND . . .



NEW *Life-Line* MOTORS NOW AVAILABLE

WESTINGHOUSE NOW OFFERS *IMMEDIATE DELIVERY* ON *STANDARD* LIFE-LINE MOTORS . . . IN RATINGS FOR 60% OF INDUSTRY'S REQUIREMENTS

To meet industry's urgent need for more—and better—motors, Westinghouse embarked two years ago on the biggest engineering and manufacturing program ever undertaken in this field.

Industrial buyers were surveyed to find the improvements most desired in existing standard motors. These improvements were incorporated, for the first time, in a single motor—the Life-Line—*a motor designed, from scratch, to user specifications.*

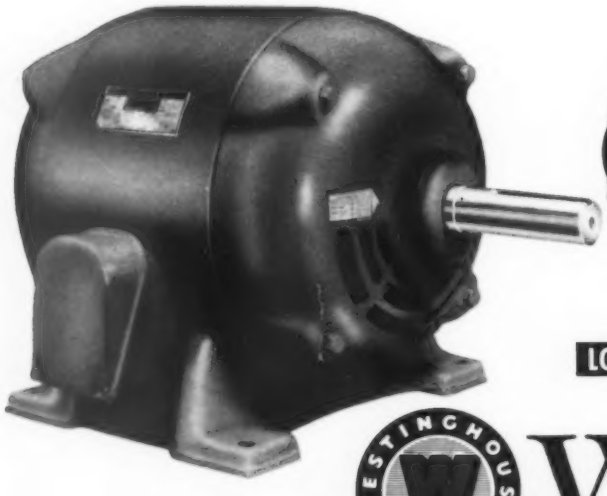
To build the Life-Line motor, a complete new plant was purchased, tooled and equipped from the ground up, with machines and new techniques never used before to manufacture motors.

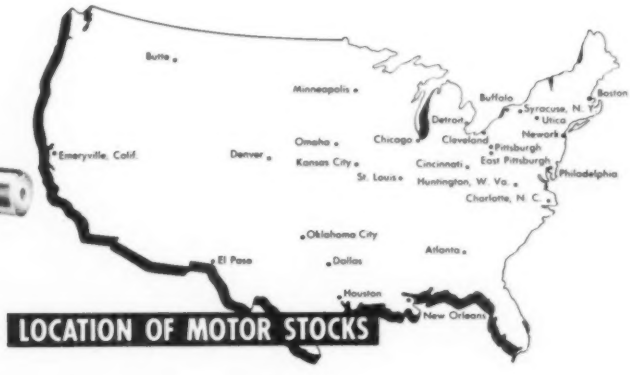
Today, we announce the attainment of our first objective. The new Life-Line motor is now available from stock, in standard types from 1 to 15 hp.

This objective was selected as of first importance, since 60% of standard, integral horsepower motors required by industrial users fall in this classification. Motor types included in stock are described on the opposite page. On "near-standard" motors, also described, short deliveries are available in these sizes.

Improved deliveries on special types and larger ratings will be the subject of future announcements, as quickly as increased output makes them possible. Watch for them . . . phone your orders from this stock list to your nearest Westinghouse representative. Westinghouse Electric Corp., Box 868, Pittsburgh, Pa.

J-21447





WESTINGHOUSE

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

FROM 1 to 15 HP FROM STOCK

WHAT IS MEANT BY "STANDARD" MOTORS

"Standard" motors include drip-proof, splash-proof, totally-enclosed, fan-cooled and some totally-enclosed, non-ventilated complete motors, ball-bearing type, having standard electrical characteristics (220/440 volt, 2 or 3-phase, 50 or 60-cycle, standard speed torque and time-temperature characteristics).

Available from stock in ratings indicated below. Very short delivery on any standard non-stock rating in these frame sizes.

TYPES INCLUDED AS "NEAR-STANDARD" MOTORS

"Near-standard" motors are those with minor modifications, which include such items as double shaft extensions, NEMA standard B and C flanges, special No. 1 insulation, round frame, conduit box opposite standard, squeeze connectors instead of conduit box, TENV motors, partial motors, 50-cycle, 40° C. rise open motors, etc.

Short delivery in frame sizes listed below.

Life-Line A-C, Single-Phase, 60-Cycle, 110-220-Volt, Heavy-Duty Type CAP Capacitor-Start, Induction-Run Motors

HP	RPM	FRAME	VOLTS	IN STOCK
1	1750	203	220	√
1½	1750	204	220	√
2	1750	224	220	√
3	1750	225	220	√

Life-Line A-C, 3-Phase, 60-Cycle, Squirrel-Cage Motors

HP	RPM	Frame	Volts	ENCLOSURE TYPES IN STOCK		
				Drip-Proof	Splash-Proof	Totally Enclosed
½	860	204	220/440	√		√
¾	1150	203	220/440	√		√
	1150	203	550	√		√
	850	224	220/440	√		√
1	1750	203	220/440	√		√
	1150	204	220/440	√		√
	850	225	220/440	√		
	850	225	550	√		
1½	3450	203	220/440	√	√	
	1750	204	220/440	√		√
	1150	224	220/440	√		√
	860	254	220/440	√		
2	3450	204	220/440	√		
	3450	204	550	√		
	1750	224	220/440	√	√	√
	1750	225	220/440			√
	1150	225	220/440	√	√	√
	860	254	220/440	√		√
	860	254	550	√		
	710	284	550	√		
3	3450	224	220/440	√		
	3450	224	550	√		
	1750	225	220/440	√	√	√
	1750	225	550			√
	1135	254	220/440	√	√	√
	875	284	220/440	√		
5	3450	225	220/440	√	√	
	1735	254	220/440	√	√	√
	1735	254	550	√		
	1200	284	220/440	√	√	√
	875	324	220/440	√		
7½	3470	254	220/440	√		
	1740	284	220/440	√	√	√
	1740	284	550	√		√
	1160	324	220/440	√		
	865	326	220/440	√		
10	3500	284	220/440	√	√	
	1740	324	220/440	√		√
	1740	324	550			√
	1155	326	220/440	√	√	
	870	364	220/440	√		
15	3500	324	220/440	√		
	1750	326	220/440	√	√	
	1160	364	220/440	√		
	1160	364	550	√		
	875	404	220/440		√	

Subject to prior sale.

Life-Line motors

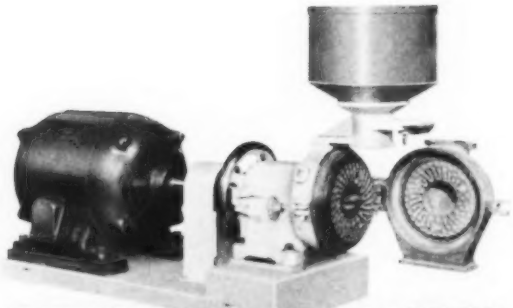
MORE PRODUCTIVE POWER FOR INDUSTRY

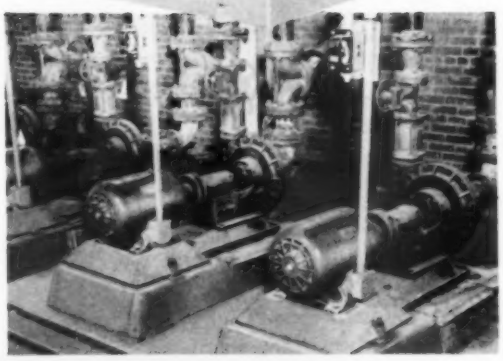
The most important advance in motor manufacture in 58 years...

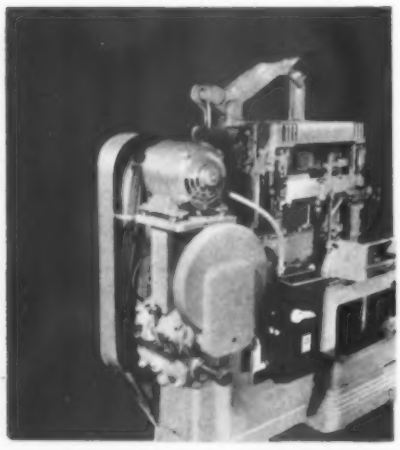
...and THE BEST SERVICE RECORD!

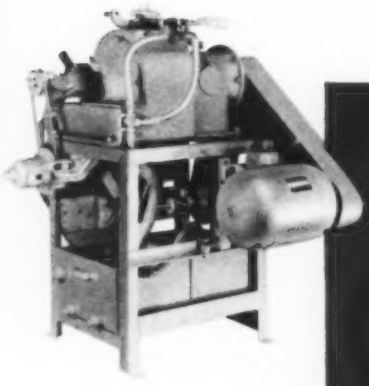
More than 250,000 Westinghouse Life-Line motors now in use on jobs as varied as industry itself, have established this fact—*the service record of the Life-Line motor, to date, is the best of any Westinghouse motor in 58 years of motor manufacture.*

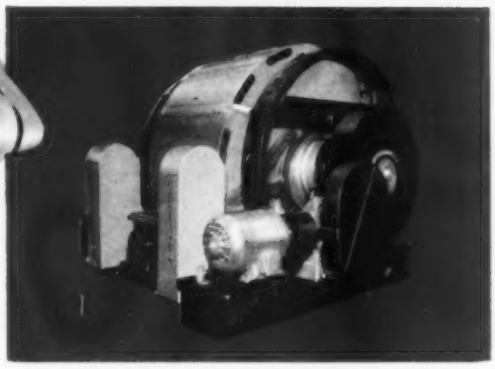
If you do not have full details on this revolutionary, new, steel-enclosed motor with its 5-year freedom from lubrication and new, high-strength insulation, ask for them today. Ask your Westinghouse representative or write Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.











WESTINGHOUSE

Westinghouse Life-Line motors

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

MORE PRODUCTIVE POWER FOR INDUSTRY

LITHO IN U.S.A.

From Abrasives to Zithers

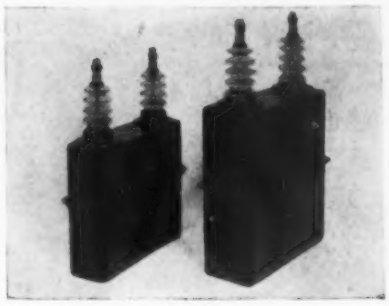
Every Manufacturer *can profit by this Complete* BEARING SERVICE

Factory trained sales engineers are located in twenty principal industrial centers . . . ready to serve you *now!*

● Regardless of the type of product that you manufacture . . . or the method used in manufacturing . . . you can secure excellent, competent bearing advice . . . plus top quality bearings at Johnson Bronze. We can help you select the *correct* bearing for your product . . . the one that will deliver the greatest amount of service for the longest period of time. For maintenance and repair we offer you the largest range of sizes in stock bearings available. Remember . . . we are the only bearing manufacturer that produces ALL TYPES of Sleeve Bearings. May we work *with* you now?

JOHNSON BRONZE COMPANY
450 S. MILL STREET • NEW CASTLE, PA.

MULTI-CONTACT A-C RELAY



DESIGNED for appliances and vending machines, new multi-contact a-c relay is available in ratings of 5 amperes, 115 volts a-c, or 5 amperes, 24 volts a-c. This two-circuit relay occupies only 3 cu. in. Multiplicity of relay forms can be obtained through combinations of contacts. It mounts by any two of the four tapped holes in the base. Soldered connections are readily made to the coil and contact terminals. Additional information in bulletin GEA 4864. *Control Division, General Electric Company, Schenectady, N. Y.*

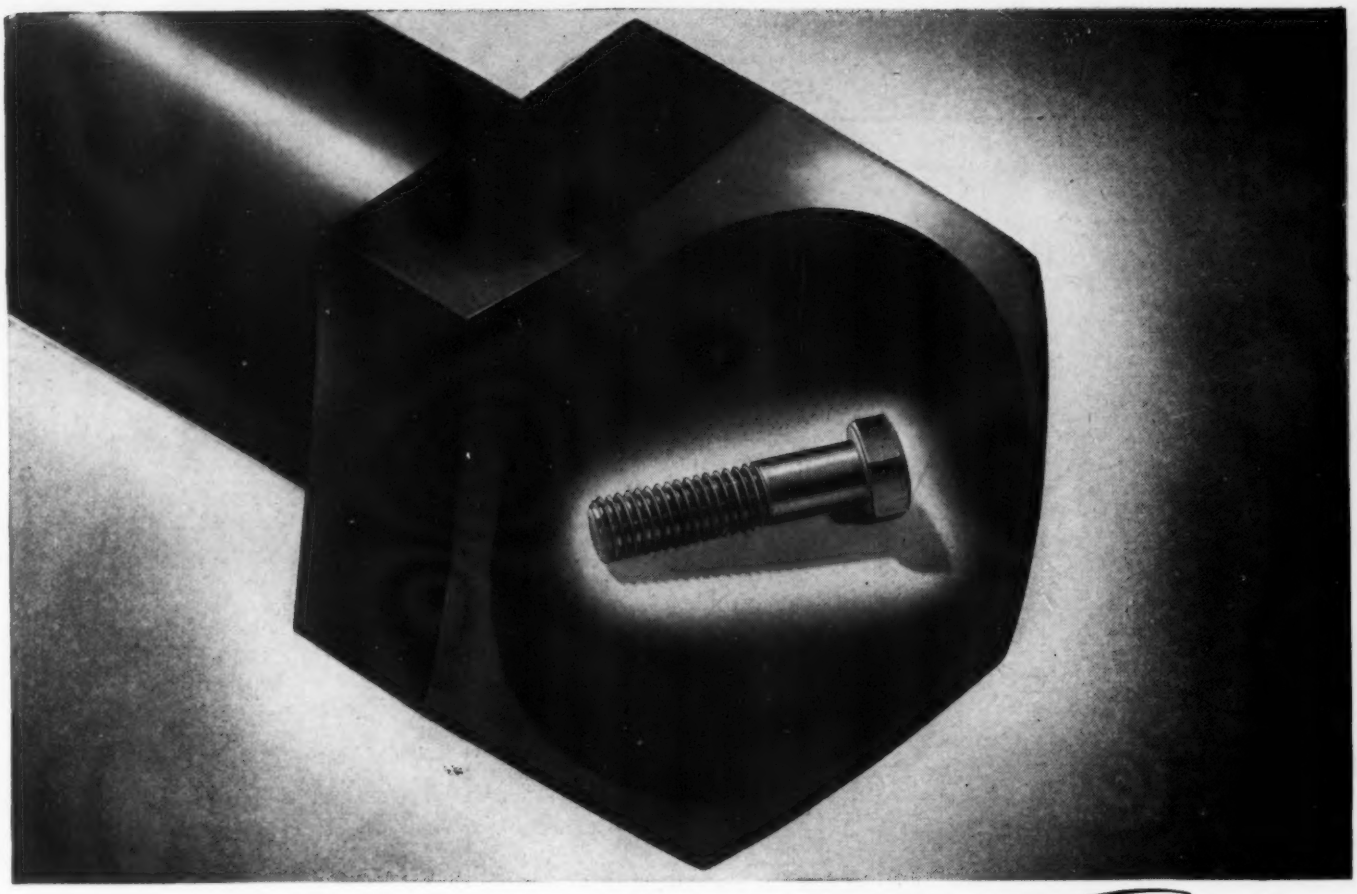
WETTER WATER FOR FIRE FIGHTING

ONE per cent of Pentrate, compounded of chemical ingredients, when added to ordinary water gives the combined solution speedy penetrating and spreading qualities superior to water itself. It is particularly effective in fighting deep-seated, smouldering fires, according to the manufacturer. It is no more injurious to metals or wood than water itself. It has less corrosive effect than water and can be used with salt water or calcium chloride solutions. Literature available. *American-LaFrance Foamite Corp., Elmira, N. Y.*

LABEL DISPENSER

TYPE "B" plastic label dispenser for use with rolls of Kum-Kleen self-adhesive labels has self-threading construction that permits rapid loading or refilling in two quick, simple steps. To use, operator pulls the glassine tape which carries the labels, and an individual label pops out ready for application without moistening. Rolls of labels up to 1¼" can be handled, or two rolls totaling not more than 1¼" in width may be used in the same dispenser simultaneously. *Avery Adhesive Label Corp., 36 W. Union St., Pasadena 1, Calif.*

(*Please turn to page* 166)



WHEN YOU GET MAXIMUM HOLDING POWER PER DOLLAR OF INITIAL COST . . THAT'S **t.f.e.** True Fastener Economy!

It's the cost of *using* a fastener that counts. Wherever maximum fastener strength is required . . . such as for engines and machine tools . . . it is *T*rue *F*astener *E*conomy to specify high-quality Cap Screws.

R B & W *Cap Screws for Utmost Security*

Raw material that is subjected to the most rigid mechanical and physical examination . . . cold-forming on the most modern machinery . . . continuous inspection at every stage of manufacture . . . contribute to your assurance that RB & W Cap Screws will have uniformly high physical properties and a finish that enhances the appearance of the finished product.

Such facilities as spheroidizing furnaces, close control heat treating, finest heading and threading equipment enable R B & W to manufacture its products to meet the severe stress conditions and close tolerances required of highest quality Cap Screws.

You Get T. F. E. When You

1. Reduce assembly time to a minimum by savings through use of accurate and uniform fasteners
2. Make your men happier by giving them fasteners that make their work easier
3. Reduce need for thorough plant inspection, due to confidence in supplier's quality control
4. Reduce the number and size of fasteners by proper design
5. Purchase maximum holding power per dollar of initial cost, by specifying correct type and size of fasteners
6. Simplify inventories by standardizing on fewer types and sizes of fasteners
7. Save purchasing time by buying larger quantities from one supplier's complete line
8. Contribute to sales value of final product by using fasteners with a reputation for dependability and finish

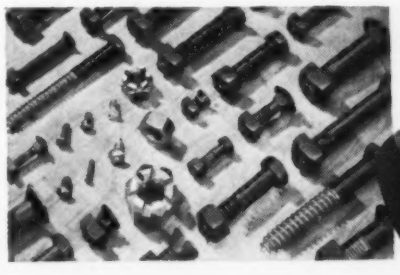
RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

102 years making strong the things that make America strong

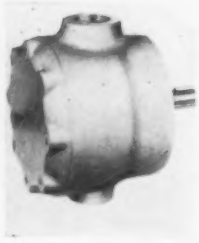
RB&W bolts, nuts, screws, rivets and allied fastening products are manufactured in a broad range of styles, sizes and finishes.

• • •

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Portland, Seattle. Distributors from coast to coast. By ordering through your distributor, you can get prompt service from his stocks for your normal needs. Also—the industry's most complete, easiest-to-use catalog.



HYDRAULICALLY BALANCED PUMP

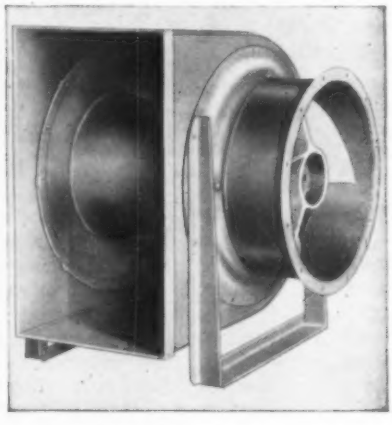


CONSTANT displacement, hydraulically balanced pump has been designed and tested for continuous duty at 1000 psi operating pressure. Pressures up to 1500 psi may be utilized for intermittent service. Interchangeable cartridges provide four capacities (10, 13½, 20½ or 27½ gpm at 1000 psi) and are available in the intermediate size, at present. Cartridge sub-assembly is said to simplify pump inspection and service. Literature available. *Hydraulic Division, Sundstrand Machine Tool Co., Rockford, Ill.*

DELAYED ACTION THERMOPLASTIC PAPER

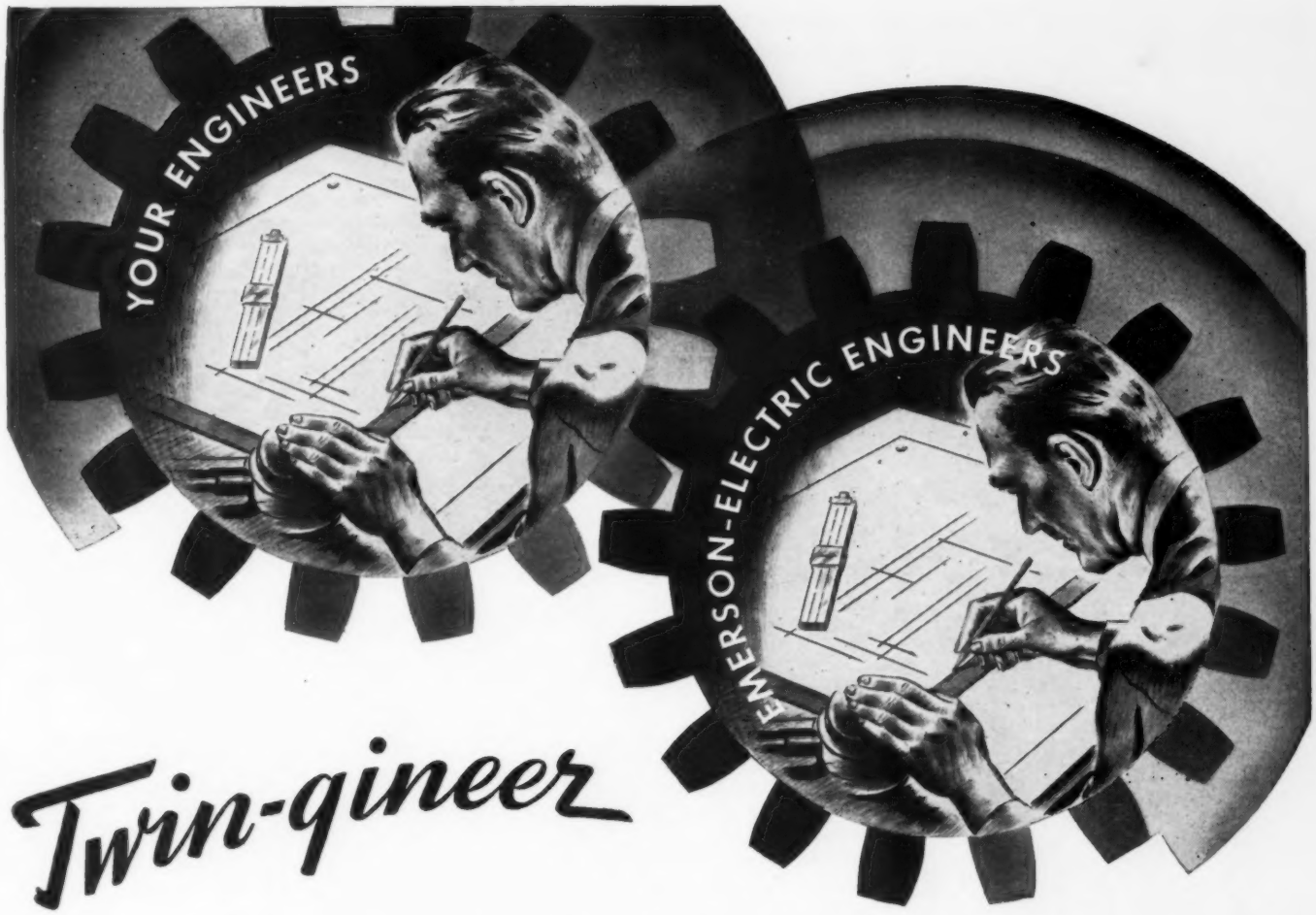
THERMO-KOTE thermoplastic adhesive paper activates at relatively low temperatures and remains "tacky" for several minutes, after the removal of the heat. It can be used where the application of heat would affect product or package adversely, according to the manufacturer. The paper is said to have all the advantages of conventional thermoplastic papers, but eliminates need for a heating element on the label applicator and speeds labeling operation. *Nashua Gummed and Coated Paper Co., Nashua, N. H.*

AXIAL FLOW PRESSURE FANS



STURTEVANT Axiflo axial flow pressure fans are available in two basic types: straight-through type or the convertible elbow type, both furnished with either the three-bladed aluminum alloy wheel or eight-bladed steel wheel. Applications for fans include air conditioning, dust and fume removal, machinery cooling, mechanical draft for combustion, industrial drying or processing. Designed for either vertical or horizontal operation, the fans are said to have high mechanical and static efficiency combined with large volumetric capacity. Sizes from 18" to 72"; static pressures from 0 to 3", and displacement from 2,000 to 115,000 cfm. *Westinghouse Electric Corp., Hyde Park, Mass.*

(Please turn to page 168)



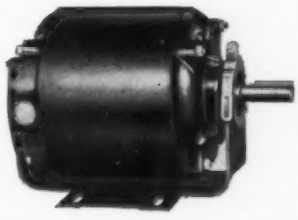
Twin-gineer

Your New Product for MARKET SUCCESS

To achieve top performance and top sales for your new or improved motor-driven appliance, mesh your own experience in design with the 57 years of engineering experience behind Emerson-Electric.

Such *meshing*—"Twin-gineering" we call it—may also help you save costly engineering back-tracking, may suggest many manufacturing short cuts.

Emerson-Electric engineers are now at your service, ready and able to gear their engineering ideas, experience and skill to your own in designing and producing market stand-outs in the motor-driven appliance field.



Emerson-Electric Motors
1/20 to 5 H. P.—AC and DC

To add this vital cog to your own business machine, get in touch with Emerson-Electric TODAY!

THE EMERSON ELECTRIC MFG. CO.
St. Louis 21, Mo.

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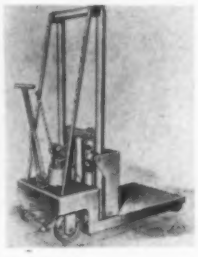
MOTORS · FANS — APPLIANCES

HYDRAULIC HIGH LIFT TRUCK



THREE thousand pound capacity hydraulic lift truck, designed for heavy and clumsy lifting, transporting and stacking jobs, has four-wheel suspension, a synchronized steering device and towing eye as standard equipment. The fork type frame has a 30″ x 36″ load platform, which is supported by concave rollers fitted to the tubular uprights. The platform has a range of elevation from 6″ lowered height to 54″ elevated height. Overall height of the uprights is 83″. Additional information available. *Lyon-Raymond Corp., 4302 Madison St., Greene, N. Y.*

INSULATION FOR THERMOSTATIC SWITCHES

FIBERGLAS sleeving can be used in thermostatic switches, where it is subjected to temperatures ranging from minus 120° to 700° F. on such equipment as deep freezers, pot furnaces for molten acetate, and ceramic ovens. According to the manufacturer, comparative tests have proved the ability of the sleeving to withstand friction, bending, and mechanical abrasion without splitting, cracking or fraying. Samples available. *Bentley, Harris Mfg. Co., Dept. P-23, Conshohocken, Pa.*

CLEVIS HOOK

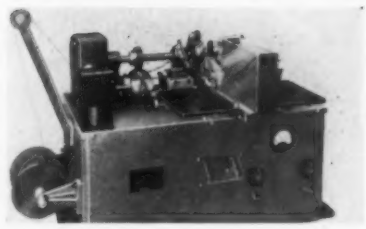
SPEED of attachment and maximum safety are attributed to new clevis hook. The design, utilizing a bolt, slotted nut and cotter pin for fastenings, makes it easy to attach the hook. No welding, machining or threading are necessary. Hook is made in popular hook sizes, 1½, 2, 3 and 5 tons. All parts are of drop-forged, heat treated steel. *The Thomas Laughlin Co., Portland 6, Me.*

DURABLE PLASTIC CABLE CLAMPS

FEATURES claimed for plastic cable clamps are: dielectric characteristic, made possible by the use of plastic, affording protection from the liability to short circuit of worn cables or wire covering; lightness; ease of handling and installation; resistance to weather and fumes; freedom from corrosion; longer service. They are furnished in black in three sizes: ⅜″, ½″, and ⅝″. Only one screw required for installation. *American Molded Products Co., 1644 N. Honore St., Chicago 22, Ill.*

(*Please turn to page* 170)

WELDING SMALL PARTS

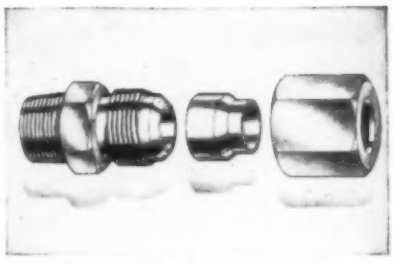


MACHINE for the welding and shaping of light, small parts difficult to process manually, welds automatically by means of an electronic welding and timing device. The equipment is said to be particularly effective in attaching light wire from a spool to parts fed automatically. One of the chief uses is the welding of tabs to radio tube cathodes. With adjustments, the equipment will also weld bi-metal strip to a two-piece lead, forming the bi-metal and cutting the bi-metal to length. *Tweezer-Weld Corp., 1060 Broad St., Newark, N. J.*

CONTINUOUS MIXER

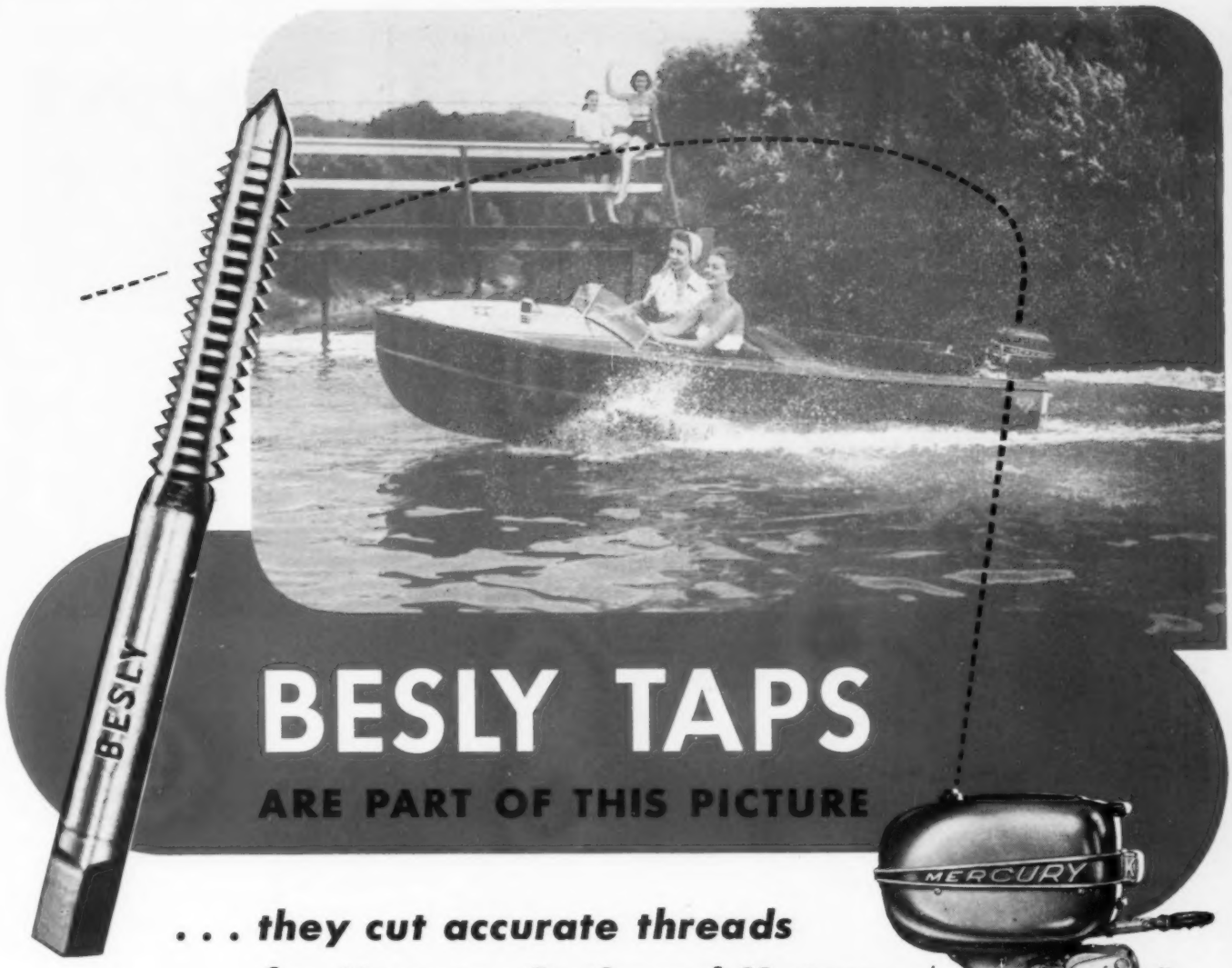
ROTO-FEED continuous mixer is designed to eliminate batch mixing in the process industries. It is said to handle products ranging from the viscosity and density of bread dough to liquids as fluid as water. According to the manufacturer, it is only necessary to proportion the desired ingredients into the mixer and they emerge thoroughly mixed at a controlled rate of 5 to 1,000 gallons per hour. Maker also states it will handle most types of products in the food, chemical, pharmaceutical and allied process industries. Literature available. *Marco Co., Inc., Wilmington, Del.*

TUBE FITTING



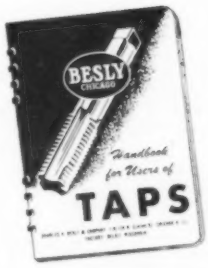
THIS Grip Tube Fitting has a connector body, a tightening nut, and a contractible sleeve which grips the tube with slotted, spring steel fingers when the tightening nut is turned. The maker claims the fitting will seal higher fluid pressures, absorb excessive vibration and through proper support of the tube prevent breakage at the flare. The fittings are manufactured in sizes ¼" to 1½" and are available in straight, union, elbow, side tee, tube tee, and cross, both male and female. *Flodar Corp., 331 Frankfort Ave., Cleveland, O.*

(*Please turn to page* 172)



BESLY TAPS
ARE PART OF THIS PICTURE

. . . they cut accurate threads for Mercury Outboard Motors



Useful Facts for TAP USERS

Get a free copy of this practical reference manual. It was prepared by shop men for shop men. Tap fits and drill sizes are listed in detail. *Write today on your letterhead for a copy.*

For close tolerance threading of aluminum outboard motor parts the Kiekhaefer Corporation, Cedarburg, and Fond du Lac, Wisconsin, relies on Besly hand, high speed machine screw taps to help achieve the power and reliability for which Mercury Motors are world-famous.

Whatever the needs of the job may be, Besly Taps—*for more than 50 years*—have proved their capacity to meet the most difficult specifications for economical precision threading in all types of work.

Besly engineers are ready to help you select the right tap for the job. Ask your distributor about Besly Taps and Besly service.

BESLY

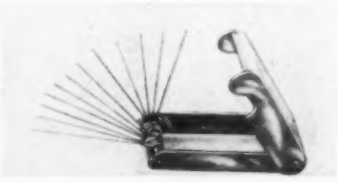
BESLY TAPS • BESLY TITAN ABRASIVE WHEELS
BESLY GRINDERS AND ACCESSORIES

CHAS. H. BESLY AND COMPANY • *Company Stocks at Chicago and Detroit*
118-124 North Clinton Street, Chicago 6, Illinois • Factory: Beloit, Wisconsin

SMALL FIRE EXTINGUISHER

POWER-PAK fire extinguisher is 15″ long by 1⅞″ in diameter. It is equipped with wall bracket for placement alongside machines, equipment or materials where there is hazard of electrical, oil, gas or other inflammable liquid fires. It weighs 2 lbs. 6 oz. filled, including 10 oz. of carbon dioxide. Printed matter available. *Power-Pak Products, Inc., Buffalo 2, N. Y.*

WELDING TIP CLEANERS



CLEANERS for acetylene welding tips, contained in an aluminum case, are said to clean the tips without damaging the parts, insuring a long, straight flame for clean, slagless cuts. Standard set of 12 cleaners will clean 27 drill sizes from #74 to #49, and special set cleans 19 drill sizes from #47 to #30. The case protects the cleaners from being bent or damaged. List of cleaner sizes to be used with drill numbers is engraved on the back of each case. *Thermacote Mfg. Co., 420 S. San Pedro St., Los Angeles 13, Calif.*

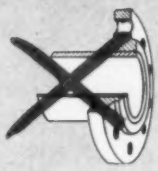
SPLIT-PHASE MOTOR

TYPE U split-phase motor is designed for application to office machines, coin operated phonographs, circulating pumps, and other devices requiring fractional horsepower motor drive. It is available in 1/20 and 1/15 hp at 1725 rpm, and 1/30 hp at 1125 rpm. Features include: generous oil reservoirs around sleeve bearings, resilient mounting rings, thermal overload protection. *Bodine Electric Co., 2264 W. Ohio St., Chicago, Ill.*

(*Please turn to page* 174)

WHEN YOU NEED Lap-Joint Stub Ends

LAP-JOINT STUB END



SCREWED AND WELDED FLANGE

SLIP-ON WELDING FLANGE

WELDING-NECK FLANGE

Whenever a flanged joint is required, the lap-joint stub end has a great advantage over flanges welded to the pipe. The swivel flange makes it unnecessary to accurately line up the bolt holes before welding; "setting up" is simple and quick because no special clamps or jigs are required to hold the face of the flange absolutely perpendicular to the axis of the pipe. The result is a real saving in time and cost of welding. Field crews report a saving of 25% in erection time for making up a joint using Midwest Lap-Joint Stub Ends in comparison with flanges rigidly fixed to the pipe.

Specify MIDWEST FOR THESE REASONS

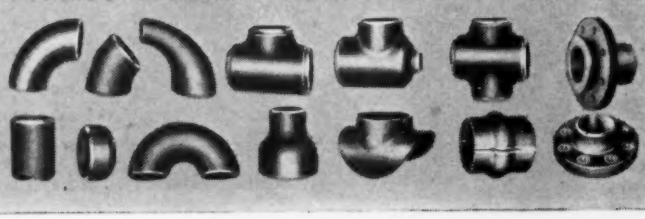
MIDWEST

PIPING & SUPPLY COMPANY, INC.

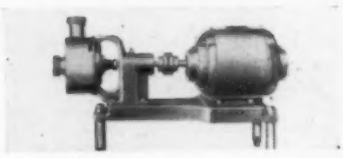
Main Office: 1450 South Second St., St. Louis 4, Mo.

Sales Offices: New York 7—(Eastern Division) 30 Church St., Chicago 3—79 W. Monroe St. • Los Angeles 33—520 Anderson St. • Houston 2—229 Shell Bldg. • Tulsa 3—533 . ayo Bldg. • South Boston 27—426 First St. • Distributors in Many Cities.

MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS

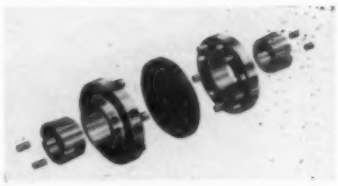


CORROSION RESISTANT PUMP



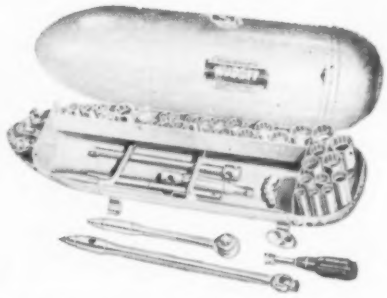
"CHAMPION" series sanitary pumps for dairy, food processing, beverage and other uses have completely demountable head and working parts for rapid, thorough cleaning, carbon-faced neoprene seals; aluminum alloy base and bracket; all contact parts of stainless steel, and other improvements. Two models are offered: The Model MS ranging from 0 gpm at 15.5 ft. head to 66 gpm at 9 ft. head; and the Model S, range from 0 gpm at 25 ft. head to 95 gpm at 0 ft. head. *Tri-Clover Machine Co., Kenosha, Wis.*

FLEXIBLE COUPLING



PIN type flexible coupling incorporates the Taper-Lock bushing used successfully with V-belt sheaves. The use of the bushing is said to insure fastening to shaft with firmness of a shrunk-on fit, and to make reboring unnecessary. The center disc is of oak tanned sole leather, providing flexibility, resiliency and strength, it is claimed. The coupling is of compact design and there are no projecting parts. Bulletin A-410 available. *Dodge Mfg. Co., Mishawaka, Ind.*

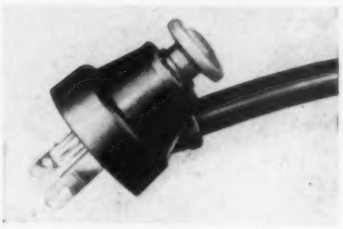
WRENCH ASSORTMENT



NUMBER 49K assortment of Blackhawk Nugget socket wrenches comes in bullet-shaped chest with wheels and skids for scooting on shop floors. Hinged lid, when open, serves as a receptacle for parts. Scoop-type bottom facilitates easy wrench withdrawal. Set contains 49 double-duty drive socket wrenches weighing 12 lbs., 2 oz. Maker claims 65 wrenches, in the ⅜" and ½" drives would be needed to do comparable work and weigh over 19 lbs. *Blackhawk Mfg. Co., Milwaukee, Wis.*

(*Please turn to page* 176)

LOCKING PLUG



NEOLOCK "105" locking plug fits any standard outlet and requires no special receptacle or attachment. Fingertip pressure on a plunger attached to a sliding wedge forces the prongs of the plug against the contacts of the receptacle, locking the plug and forming a positive contact even in a badly worn receptacle. It is unlocked by pulling out the plunger. No twisting or turning is necessary. It is made of Neoprene, has no exposed metal parts, and is approved by the Underwriters' laboratories. *Neoline, Inc., 130 S. Hewitt St., Los Angeles*

GERMICIDE COMBINED WITH DETERGENT

RODACIDE is a liquid combining the germicidal and fungicidal properties of a quaternary ammonium compound with a compatible non-ionic detergent. It is suitable for use in two-and three-tank dishwashing systems. It can also be used for general cleaning of refrigerators, toilet areas, walls, floors, food storage areas etc. It has no odor or taste, and can be used safely on all eating utensils, according to the manufacturer. It is said to be stable over long periods of time, non-irritating, non-corrosive, and non-spotting. *Fairfield Laboratories, Inc., Plainfield, N. J.*

GEAR TESTER

PARKSON 9" gear tester has been redesigned and now incorporates an adjustable stop rod, in addition to the precision scale and long vernier which are used for the setting of the center distance. When a number of gears of the same size are to be tested the stop-rod is set and clamped in position. Illustration shows machine set up for spiral gears. It also is available for spur, bevel, and worm gears, either in combination or single purpose models. *George Scherr Co., 200 Lafayette St., New York 12, N. Y.*

(*Please turn to page* 178)

A FEW OF THE MANY WAYS APAC SHEATHING CAN HELP YOU

- Exterior siding
- Interior sheathing
- Office paneling
- Partitions
- Linings for elevator casings
- Shower stalls

Nature made Asbestos...
Keasbey & Mattison
has made it serve
mankind since 1873.

K&M best in asbestos

The owners of this water cooling tower formerly believed raw redwood was the only material able to withstand the moisture conditions. Apac has proved superior both in efficiency and appearance.

K&M "Century" APAC

ASBESTOS-CEMENT SHEETS

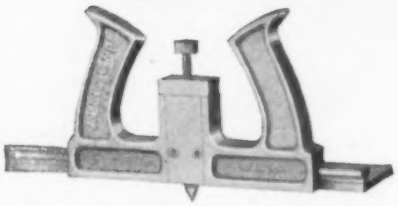
You've known for years that asbestos-cement is a highly fire-resistant combination. But here's a case where asbestos-cement sheets were used to combat an enemy of exactly the opposite type—the corrosive effects of moisture.

The paneling on this water cooling tower is K&M "Century" Apac—a flat asbestos-cement building sheet that has as many uses as a building has surfaces. Apac won't rot, won't rust, and actually grows tougher with age. It never needs protective painting or other upkeep.

Apac is furnished in thicknesses of 3/16", 1/4" and 3/8". Standard sheet is 4' x 8'. And it's easy to cut—just score and snap off. Nails or screws hold it firmly in place. These advantages, plus surprisingly low cost, make "Century" Apac an unusually economical material. Write us for full details about K&M "Century" Apac—we'll attend to your inquiry promptly.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

WIDE BELT CUTTER



NUMBER 300 "Alligator" wide belt cutter cuts belts up to 60" wide and 1⅛" thick. Said to simplify belt cutting, it has two elements, the head that carries the blade and a T-shaped base or guide rail. The blade is V-shaped, is held in a vertical position in the head, and vertical adjustment is accomplished by means of a screw. The base is made in four lengths for 24", 36", 48" and 60" belts. *Flexible Steel Lacing Co., 4607 Lexington St., Chicago 44, Ill.*

SMALL DIAMETER TAP CHUCK

SMALL diameter tap chuck embodying accuracy, strength and featuring lightness in weight, is designed particularly for tapping heads and tapping machines. Maker says it develops less torsional inertia, reduces tap breakage in bottom tapping, and allows for quicker reversing and higher spindle speeds. But three chucks are needed to cover a range of taps extending from a #0 machine screw to ⅝" hand tap. Printed matter available. *Jacobs Mfg. Co., 110 Jacobs Road, Hartford, Conn.*

EYEGLASS PROTECTION

COMFORTABLE, easy fit over all types of glasses, including the widest safety spectacles, is claimed for #30 Eye Savers. The molded frame is said to withstand heavy impact, and extra large bridge-size to provide universal fit. Shatterproof Impax plastic lenses are claimed to exceed Federal specifications for impact-resisting goggles. Lenses or frames replacable. Goggles are described as being exceptionally light weight. *Watchemoket Optical Co., Providence 3, R. I.*

THERMO-COUPLE PROTECTING TUBE

HEAVY - wall cast-iron "Servrite" thermocouple protecting tubes are cast with both ends open, and a special technique is employed for weld-closing one end. Porosity in the casting is eliminated by the addition of a small amount of alloy element. It is said that x-ray inspection reveals uniform wall thickness, freedom from casting defects and good welding. The tubes are furnished with a ⅜" wall thickness and a 15/16" inside diameter. *Claud S. Gordon Co., 601 W. 30th St., Chicago, Ill.*

(*Please turn to page* 180)

FOR EXAMPLE

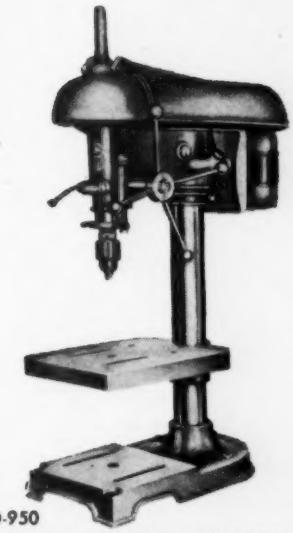
DONNELLY ELECTRIC & MFG. CO. SIMPLIFIES DRILLING OPERATIONS BY OVERHEAD MOUNTING OF WALKER-TURNER 15" DRILL HEADS

How to drill and tap holes in bulky radar cabinets, some five feet high, without lifting them onto a drill press table was the problem faced by the Donnelly Electric & Mfg. Co., of Boston, Mass.

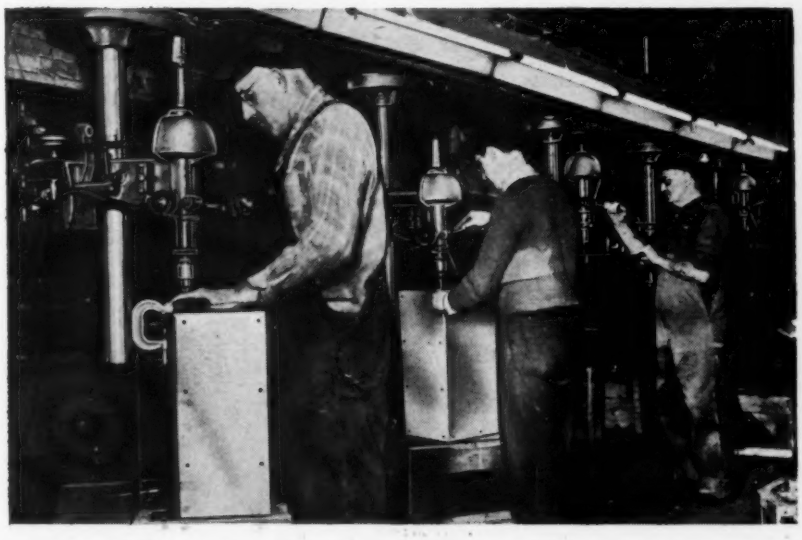
The adaptability of Walker-Turner Machine Tools made the solution simple. A battery of standard Walker-Turner 15" Drills was mounted from above and the cabinets, each requiring 44 holes of five different sizes, were placed on hand trucks and pushed along underneath them.

This is only one example where Walker-Turner Machine Tools are being used in groups and in special set-ups designed by the users to solve unusual problems, or free costlier machines for other work. Because they consider them excellent, rugged all-around machines, Donnelly also uses Walker-Turner Drill Presses for a wide variety of standard operations. Metals machined include cold rolled steel, hot rolled steel, aluminum, brass, and stainless steel.

Light-weight and compact, Walker-Turner Machine Tools offer extreme flexibility of mounting and control. Their wide range of speeds enables them to handle all types of materials from wood and plastics to tool steel. Rugged construction permits many operations, assures long, trouble-free life under the most rigorous production program. And low investment, low operating cost means real savings. *For complete catalog, write to Walker-Turner Company, Inc., Plainfield, New Jersey.*



Model D-950
Price: Less motor and belt guard $69.50*



Photo, lower right: 44 holes of varying size are drilled in metal radar cabinets with Walker-Turner 15" Bench Model Drill Presses. A cumbersome lifting job is eliminated by the overhead mounting.

**Photo, upper right:* 15" Drill Press, Bench Model D-950. 6 spline spindle, 4 ball bearings, 4¼" spindle travel, speeds with 1740 r.p.m. motor range from 600 to 5000 r.p.m. Capacity ½". Slo-speed motor optional.

walker-turner MACHINE TOOLS

DRILL PRESSES—HAND AND POWER FEED
RADIAL DRILLS • RADIAL SAWS
METAL-CUTTING BAND SAWS
POLISHING LATHES
FLEXIBLE SHAFT MACHINES
RADIAL CUT OFF MACHINES FOR METAL
MOTORS • BELT & DISC SURFACERS

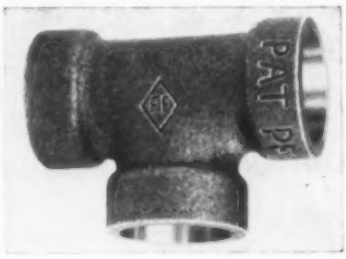
SOLD ONLY BY AUTHORIZED INDUSTRIAL MACHINERY DISTRIBUTORS

3098

Threadless Malleable Fittings

Thread Cutting Eliminated—New Fittings Make Possible the Use of Lighter Weight Pipe—Fittings Available in Sizes up to and Including Two Inches

Threadless pipe fittings designed for brazing to standard black steel or wrought iron pipe, which eliminate thread cutting, and make possible the use of lighter weight pipe have been introduced by Stanley G. Flagg & Company, Inc., Philadelphia, Pa.



This is the Flagg-Flow threadless malleable fitting.

According to President S. Griswold Flagg, the new fitting gives "one-piece" security to steel and wrought iron pipe in small sizes, for the joints are as strong or stronger than the pipe itself. The new fitting brings to industry the benefits of ordinarily high-priced welded or brazed installations at a cost no higher than ordinary screwed pipe installations.

Described as the first joint ever produced that opens the way to reducing the wall thickness and weight of pipe, the fitting, known as Flagg-Flow, enables the use of plain end pipe. Mr. Flagg stated that the Flagg-Flow also affords 30% less weight than the same kind and size of threaded fitting, because of the absence of the chamber, and makes possible the use of lighter weight pipe throughout a piping system.

A simple brazing operation forms a seamless, perfectly bonded joint.

The fittings have proved the ability of the joint to withstand higher rates of vibration than threaded joints, according to Mr. Flagg, and offer advantages on lines subject to vibration, contraction or expansion.

Their use is suggested for hot and cold water lines, steam and fuel oil piping, radiant heating, for meter and instrument lines, boiler feed lines, lubricating oil piping, gas and air piping, hydraulic systems not over 300 pounds and process piping where iron or steel pipe is applicable in industry, and in transportation for air, steam, oil and water systems, within allowable pressure and temperature ranges.

The threadless malleable fittings are applicable wherever 150-pound, standard weight, black, malleable, screwed fittings are now used, that is for 150-pound working steam pressure at 450 deg. F., or 300 lbs., non-shock, oil, water, or gas lines at 150 deg. F.

The interior design of Flagg-Flow provides a smooth, unbroken, pocketless channel which gives free flow characteristics, and gives to iron and steel pipe the advantages of streamlining and low-friction loss found in welded pipe.

No special skill is required for installation. The fittings offer complete freedom in piping layout, as no wrench clearance

The joint is stronger than the pipe. Tensile specimen pulled at 65,000 psi.

is needed or even jaw space. The fittings can be faced in exactly the position desired and brazed in that position without trouble, the silver brazing alloy flowing by capillary action to form a seamless, permanently bonded joint. Dis-jointing is simply a matter of heating the joint with brazing torch.

Printed matter describing fittings in more detail, available on request.

* * *

"PLASTIC MAGNETS" MADE BY CALIFORNIA COMPANY

"Magnets" which contain no metals have been made by Plastics Research Company, P. O. Box 346, Alhambra, Calif.

According to Chief Engineer Robert B. Stanton, the "plastic magnets" are made by rearranging the atomic structures of thermosetting and thermoplastic materials with a strong electric field and have been technically designated "electrets."

Although the electrets manifest polarization characteristics of the magnetic

(*Please turn to page* 182)

● Note that these Engineer's Pattern "Superrenches" are thin enough to operate jam nuts.

YOU GET STREAMLINED STRENGTH WITH WILLIAMS "Superrenches"

Awkward, hard-to-reach adjustments present no problem for these streamlined "Superrenches". Forged from alloy steel, they are light in weight yet their strength is equal to that of the strongest wrenches made. Available in all popular patterns, with openings from 3/16" to 3-1/8". "Superrenches", with highly polished heads, are handsomely finished in durable chrome plate, over nickel.

WILLIAMS

• OUR DISTRIBUTOR IS YOUR LOCAL WAREHOUSE

OPEN END, BOX, ADJUSTABLE & RATCHET WRENCHES; DETACHABLE SOCKETS & SETS; IMPACT SOCKETS; TOOL HOLDERS; LATHE DOGS; "C" CLAMPS; CHAIN PIPE TONGS & VISES; FLANGE JACKS; PLIERS; SCREWDRIVERS; PUNCHES & CHISELS; SOFT FACED "NUPLAFLEX" TIPPED HAMMERS; HOIST HOOKS; EYE BOLTS; ROD ENDS; CRANK & BALANCE HANDLES; THUMB SCREWS & NUTS.

J. H. WILLIAMS & CO., BUFFALO 7, N. Y. *Distributors Everywhere*

(*Continued from page* 180)

type, the plastic units function as electrical condensers and can be used to make loudspeakers, microphones, electrical instruments, vacuum tubes, or related equipment of unprecedented efficiency.

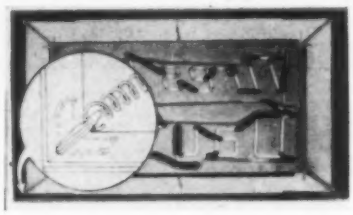
The Plastics Research electrets represent what is probably the first practical application of an obscure theory initially advanced by Michael Faraday more than 100 years ago in his "Experimental Researches in Electricity."

When facilities are available for the production of electrets in commercial quantities, Stanton claims the "plastic magnets" can be produced at about a tenth the cost of manufacturing permanent magnets from cobalt steel.

"Like cobalt steel magnets," Stanton adds, "the polarization of an electret will probably decay after several years. However, there has been no apparent decay in the polarization of any of the electrets we have not purposely destroyed in the course of experiments during the past two years."

SHIPMENT SUSPENDED ON SPRINGS IN CARTON

An innovation in the use of corrugated-board shipping cartons for shipping and storage of fragile skeleton neon signs has been announced by Henry M. Miles, President of Miles Industries, Inc., of Lima, Ohio.



The new Miles method of suspending a sign on springs in a carton is accomplished by means of metal clips (patent applied for) illustrated by accompanying photograph. On unusually long cartons the clips are also inserted through the side wall of the carton. To these clips are attached small coil springs, which in turn are fastened to a welded metal frame. This frame is covered with a sheet of corrugated-board which acts as a backing to which fragile and breakable products can be attached.

Neon signs and other breakable materials are fastened to the corrugated-board backing by means of small wires or cotton tapes, allowing the frame and springs to absorb any twisting of the carton or shock in handling. This method results in shipping and storage with far less breakage.

A patent application has been filed on the metal corner clip used in this suspension type of shipping carton. Realizing the need for this type of carton, Miles Industries, Inc., are licensing other manufacturers to use this clip. Additional information may be obtained by writing Miles Industries, Inc., Dept. 274, Lima, Ohio.

(*Please turn to page* 184)

Here's my New Year's resolution

START 1948 RIGHT, THIS WAY—

First, make a complete and honest survey of your equipment that will show you where it has not been standing up as it should; find out where maintenance, repair and cleaning costs are out of line because the materials you are now using do not measure up to the job.

Then, tell us under what conditions your equipment operates—the corrosive products it has to handle—what temperatures and pressures are employed — whether erosion is a problem—the sort of abusive treatment it must withstand—how much importance you place on freedom from product contamination, on easier cleaning and greater safety.

Once we know these things, our stainless steel specialists will tell you which of the various types of U·S·S Stainless will best meet your needs . . . and they'll show you, too, how and where this time-tested steel can be most economically applied to obtain the results you desire.

We don't know of any better way to insure you a happier and more prosperous New Year.

USS STAINLESS STEEL — UNITED STATES STEEL

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

S-144

UNITED STATES STEEL AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago · COLUMBIA STEEL COMPANY, San Francisco
NATIONAL TUBE COMPANY, Pittsburgh · TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham
UNITED STATES STEEL SUPPLY COMPANY, Warehouse Distributors—Coast to coast: UNITED STATES STEEL EXPORT COMPANY, New York

FUNCTIONAL DESIGNING OF SHIPPING CONTAINER

The accompanying "before" and "after" illustrations provide an example of designing a shipping container by applying the "Part of the Product Plan" to a shipper for a six cylinder engine block. The requirements called for a lightweight, heavy duty crate that could be quickly assembled, and also embody provisions for handling with automatic equipment.

The solution developed by packaging engineers of the General Box Company incorporated a Generalock wirebound crate placed on a skid type base, in a combination of light weight and strength, easy assembly, and easy handling, the latter two features being provided by the Generalock principle, and the skid type base.

* * *

ALUMINUM ALLOY GIVES HIGH STRENGTH WITHOUT HEAT TREATMENT

A new aluminum casting alloy, called Tenzaloy, is announced by the Federated Metals Division, American Smelting & Refining Co., 120 Broadway, New York, N. Y. It was developed to meet foundry demand for a casting alloy that furnishes high strength and hardness without the expense of heat treatment, and according to Federated, enables foundries without heat treating equipment to produce castings having properties equivalent to those obtainable by conventional heat treating methods.

Nominal composition of Tenzaloy is 0.8% copper, 0.4% magnesium, 8.0% zinc, and balance aluminum. Other advantages are said to be exceptional machinability, excellent corrosion resistance, and extreme whiteness. Products such as hose couplings, "C" clamps, electrical conduit fittings, and general hardware fittings are being made with the alloy.

Tenzaloy is readily cast with standard foundry procedure and equipment into sand, plaster, or permanent molds.

(*Please turn to page* 186)

How G-E infrared lamps turn watts into profits

Quick heat at low cost. That's the result that makes General Electric infrared lamps so popular for a wide variety of industrial processes—drying finishes, baking ceramics, dehydrating textiles, setting plastics, and many others.

G-E infrared lamps turn watts into profits, because they speed production, reduce equipment costs, permit more economical use of plant space, help to control product quality. For best results with infrared ovens, insist on G-E lamps—available in both reflector and clear bulb types, 125 to 1000 watts.

IMPORTANT REASONS *why it pays to insist on G-E when you buy lamps*

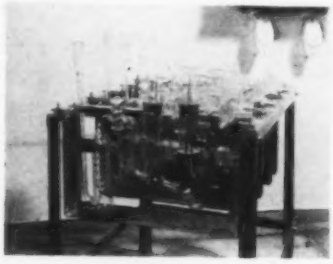
1. *Complete line to choose from—over 10,000 types and sizes.*
2. *Quality assured by 480 tests and inspections.*
3. *G-E makes all lamp parts.*
4. *Most improvements in lamps and lighting have come from General Electric.*
5. *Services of G-E lighting engineers conveniently available.*
6. *General Electric research works constantly to make G-E lamps Stay Brighter Longer!*

G-E LAMPS

GENERAL ELECTRIC

STANDARDIZATION OF THE pH SCALE

The pH unit, used to express numerically the degree of acidity or alkalinity of aqueous solutions, may be defined in a number of ways, each resulting in a slightly different value for the pH of a given solution. Consequently, several pH scales, based upon various definitions,



Cells without liquid junction designed at the National Bureau of Standards for the accurate determination of the pH of solutions of standard pH samples issued by the Bureau

have met with equal favor among chemists. In view of the increasing need in science and industry for accurate determinations of acidity, the National Bureau of Standards is recommending the universal adoption of a single standard pH scale, analogous to the International Temperature Scale. It is proposed that the pH assigned to solutions of buffer substances distributed by the Bureau as Standard Samples be taken as the fixed points on this standard scale.

The several convenient pH meters now available commercially enable precise determinations of pH values in varied media to be made with ease and rapidity, but these values are based upon a scale fixed by the pH assigned to the standards with which the intruments has been calibrated. The differences among scales of pH are the direct result of different procedures, definitions and assumptions employed in arriving at the pH of the standard. Although the differences among these scales rarely exceed 0.1 unit, the need for greater accuracy makes desirable the general adoption of a single series of consistent pH standards.

In an effort to encourage standard procedure in pH measurements, the National Bureau of Standards is now supplying four buffer materials in the form of Standard Samples of certified purity. These substances are acid potassium phthalate, potassium dihydrogen phosphate and disodium hydrogen phosphate (intended to be used together), and borax. They are being distributed at the rate of several hundred samples annually. The certificates furnished with these compounds specify the pH of certain aqueous solutions of the sample, which can provide fixed points on a pH scale.

In order to assign exact values to these fixed points, it was necessary to set up a scale based upon some suitable definition of pH. A consideration of the advantages and limitations of several scales led to a choice of a modified activity scale as most convenient and practical for general use.

(*Please turn to page* 188)

NO LOST MOTION

when you "move it" with a

WORKSAVER

ELECTRIC LIFT TRUCK

From assembly line to truck is the snappy kind of handling delivered by the Yale Worksaver. There are 7 different models to fit every type of handling job. The model you see in action here is the High Lift Tilting Fork. Every one a saver of time, work, money.

One look at the Worksaver and you can see that it's built to take plenty of tough service. Yet, it's a greyhound for action. It lifts and travels by electric power. Two forward and reverse speed cams are located under the handle for easy, quick, safe control at all times. Snubbing action, while gradual, enables operator to stop truck "on a dime." Extra large ball bearing turntable provides easiest possible steering even in narrow aisles and tight corners. There is enough battery capacity available to run it for 2 days without recharging. Recharging can be done on the run so to speak, without removing battery.

Let a Yale representative give you a demonstration. It costs you nothing; may save you plenty. See your local telephone Red Book for the Yale representative nearest you or write direct to The Yale & Towne Mfg., Co., 4576 Tacony St., Philadelphia 24, Pa.

See Yale Worksavers in Action! National Materials Handling Exposition
Jan. 12-16 · Cleveland Auditorium · Booths 125-130.

MATERIAL HANDLING MACHINERY

CUTS PRODUCTION COSTS... SAVES TIME... SAVES EFFORT... PROMOTES SAFETY

YALE

INDUSTRIAL DIAL SCALES · HOISTS—HAND AND ELECTRIC · TRUCKS—HAND LIFT AND ELECTRIC

(*Continued from page* 186)

Although the activity of a single ionic species can be simply defined only in very dilute solutions, the influence of the hydrogen-ion activity in chemical equilibria is of far-reaching importance.

The pH of the NBS standards is derived from measurement of the electromotive force of cells without liquid junction, in which they are used as electrolytes. These cells are specially designed, utilizing the highly reproducible hydrogen and silver-silver chloride electrodes. Computation of pH is based upon several reasonable assumed relationships between ionic activities and mean activities. These assumptions are found to give identical values for dilute solutions. The scale thus obtained approaches a true scale of activity for solutions of low concentration; at higher ionic strengths it is best regarded as a consistent scale which necessarily rests upon an assumption not subject to experimental proof.

BELT WITH RUBBER TEETH

A belt with rubber teeth that will not slip is announced by the L. H. Gilmer division of United States Rubber Co., Rockefeller Center, New York, N. Y.

The Gilmer belt is for use with special grooved pulleys.

The new belt is said to be enormously strong, highly flexible and virtually noiseless in operation. It is designed for use on machinery equipped with special pulleys grooved to fit the teeth. It is reinforced with steel cables embedded in oil-resisting synthetic rubber. The cables reduce stretch almost to zero. In operation the belt makes positive engagement with the pulleys at any speed ranging from a snail's pace to 10,000 feet per minute. It is known as the Gilmer Timing Belt and will be made in various sizes. Wide usage is expected on machine tools, business machines and industrial equipment as well as in the automotive and aviation fields.

CORRUGATED FIBREBOARD BOXES SEALING, CFC RULE 41

Effective December 23, 1947: Section 7: Boxes must have both inner and outer flaps drawn together as closely as possible to insure tight pack; lengthwise flaps must meet or overlap; no flaps must project over edges; and box must be sealed by one of the following methods: (1) All flaps must be firmly glued not less than 50% of area of contact. (2) All flaps must be fastened with metal rivets, staples or stitches not more than 2½" apart. Staples made of flat wire of hardness not less

(*Please turn to page* 190)

Don't let PRESSURE get you down!

CALL US FOR STEEL

In our ten warehouses, conveniently located from coast to coast, we are gradually building our stocks of steel to permit us to do a better job of meeting your requirements for—Stainless, High Strength and Alloy Steels; Hot Rolled and Cold Finished Bars, Structural Shapes, Plates, Sheets, Metalworking Machinery, Industrial Supplies, etc.

So, always remember, when you need steel, telephone, wire or write our warehouse nearest you. You'll get prompt, courteous service at all times.

SYMBOL OF SERVICE *for Steel Users*

UNITED STATES STEEL SUPPLY COMPANY USS STEELS SERVICE

UNITED STATES STEEL SUPPLY COMPANY

CHICAGO (90)	1319 Wabansia Ave., P. O. Box MM	BRUnswick 2000
BALTIMORE (3)	Bush & Wicomico Sts., P. O. Box 2036	Gilmor 3100
BOSTON	176 Lincoln St., (Allston 34), P. O. Box 42	STAdium 9400
CLEVELAND (14)	1394 East 39th St.	HEnderson 5750
LOS ANGELES (54)	Slauson Avenue (Between Alameda and Sante Fe)	LAfayette 0102
MILWAUKEE (1)	4027 West Scott St., P. O. Box 2045	Mitchell 7500
NEWARK (1), N. J.	Foot of Bessemer St., P. O. Box 479	Bigelow 3-5920 REctor 2-6560—BErgen 3-1614
PITTSBURGH (12)	1281 Reedsdale St., N. S.	CEdar 7780
ST. LOUIS (3)	311 S. Sarah St., P. O. Box 27	LUcas 0440
TWIN CITY	2545 University Ave., St. Paul (4), Minn.	NEstor 7311

UNITED STATES STEEL

(*Continued from page* 188)

than equivalent of Rockwell B 90, and not less than .037 inch thick and not less than .074 inch wide, with not less than 1¼ inch, may be spaced not more than 5 inches apart. Such staples must be used either across the center seams or on both sides of center seams where outside flaps meet but need only be used where outside flaps overlap inner flaps. (3) All outer seams must be securely sealed full length with paper sealing strips. Paper sealing seams must be made of sulphate paper of basic weight not less than 60 pounds per 500 sheets, 24 x 36 inches, testing not less than 60 lbs., or of rope-stock paper described in Rule 40, Section 10 (c), basic weight after sizing and coating not less than 85 lbs., testing not less than 65 lbs. Sealing strips must be not less than 2 inches wide. Articles tendered for transportation in fibre boxes, if requirements and specifications are not fully complied with, freight charges will be increased 20% L C L or Any Quantity, and 10% carloads, subject to prescribed minima per Section 1, Rule 41, Supplement 31, p. 16.

NEW LIFTING MECHANISM FOR "CARLOADER" FORK TRUCK

A new lifting mechanism combining a tiering height of 130 inches and overall collapsed height of only 83 inches was recently introduced by Clark Tructractor, Battle Creek, Mich. Known as the "Hi-Lo-Stack", the new lift is designed for use on Clark's "Carloader" line of fork trucks.

Tiering height 130 inches

Outstanding among the features of the new device is the ability to raise the fork 63 inches from the floor before there is any increase in the minimum overall height of the machine, either of the upright or of the vertical face of the forks. This is obtained with a single lift cylinder and a single set of uprights and innerslides. The lift of maximum loads of 4000 lbs. is accomplished with extremely low hydraulic pressure in the lift-cylinder.

The 83 inch overall height permits easy passage through 7-ft. door openings. The 63 inches of "free" lift make it possible to tier material to box car ceilings without interference from uprights, and the 130 inches of maximum lift permits the most effective use of "air rights" in warehousing operations.

(*Please turn to page* 192)

PAINT BRUSHES—100% BOAR BRISTLE FOR INDUSTRIAL MAINTENANCE

The Fuller Brush Co., Hartford 2, Conn., has entered the paint brush field with a line designed particularly for industrial purposes. All brushes are filled with bristle, which is characterized by "flag ends" which of themselves are said to constitute tiny paint pockets or reservoirs. Bristles are fastened in a vulcanized rubber base and attached to a lacquered handle by stainless steel and nickel-plated ferrules. Fuller all-bristle brushes are manufactured as wall brushes, stucco brushes, varnish brushes, sash and trim brushes, in sizes most commonly favored by industrial plants. Six-page catalog folder describes the line in detail.

Bristles are fastened in vulcanized rubber base, and have stainless steel or nickel-plated ferrules.

"COOL GRINDING" METHOD ANNOUNCED BY DoALL

"Cool Grinding" introduced by the DoALL Company, Des Plaines, Ill., introduces a new method of cooling work when being ground on any grinder. The innovation gives operators of grinding machines the two-fold benefits of the visibility of dry grinding and having at their finger tip absolute control over adequate cooling of the work being ground.

The principle of "cool grinding" lies in the introduction of the coolant directly at the point of contact between wheel and work. It eliminates the need for splash guards, settling tanks, pump motors, hoses and floor space formerly occupied by coolant equipment.

The "cool grinding" unit consists of a coolant reservoir mounted on the spindle column, a sight drip valve and a special wheel adapter. The coolant is fed from the reservoir at a rate of from one to four drops a second depending on the material being ground. It is directed into the fronts of the special wheel adapter where it enters the arbor hole of the grinding wheel. The grinding wheels used in the process have no lead or ceramic and the coolant enters the wheel at the inside and is thrown by centrifugal force to the outside grinding face of the wheel.

According to the DoALL Company, actual tests have shown that temperatures are held several hundred degrees below those found in conventional wet grinding systems. Also, the process is said to eliminate surface cracks, and to result in

(*Please turn to page* 194)

YES, LUCKY LADY, INDEED! Among her gifts she finds a Fieldcrest set of quality towels in the striped foil package. The chances are slightly better than 4 to 1* that this outstanding product was chosen because of the package. LUCKY, TOO, is the manufacturer who chooses Old Dominion for his box production. Whatever your needs may be in set-up, corrugated, folding or canister type packages, you'll find that Old Dominion makes a box with extra sales appeal, display value, protection and product identification that helps to sell your product. Consult Old Dominion today.

**Recent consumer preference surveys show that 84% of the buying public today prefer packaged products and that most of these customers recognize product and brand identification by the package. Write today for Old Dominion's booklet on set-up boxes, #78.*

OLD DOMINION *Box Company Inc.*

PLANTS LOCATED THROUGHOUT THE SOUTH

CHARLOTTE, N. CAROLINA

THE SOUTHERN BOX MAKER WITH A NATIONAL REPUTATION

(*Continued from page* 192)

longer wheel life and better finishes especially in softer materials such as copper, bronze, aluminum, etc.

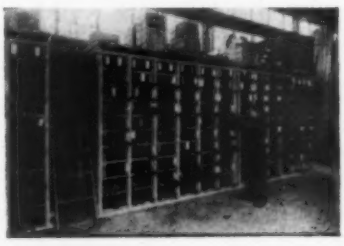
At present the unit is available as an attachment for DoALL 6" x 18" surface grinders, and the company states that it will soon be offered for other makers of surface grinders, as well as for bench, cylindrical, centerless, and internal grinders.

SPACE SAVING AND IMPROVED WAREHOUSE EFFICIENCY

The accompanying illustrations show steel storage arrangements in the new Primos, Pa., warehouse of the Crucible Steel Company of America, designed to conserve space and increase efficiency.

"A" racks for bar steel storage.

The first of them shows vertical "A" racks for storage of bar steels. These are anchored to the concrete floor, leaving ceiling clear for crane movements to any point in the storage area. In this picture a warehouseman is handling a heavy stainless bar alone with a floor operated crane.



Heavy wooden floor on horizontal racks for steel provide "top deck" storage space.

The second illustration shows how "top deck" storage space is gained in the warehouse by heavy wooden floor built on horizontal racks for steel. It provides space easily accessible by overhead crane for reserve stocks of welding rods, steel sheets, tool bits, and other packaged items.

The third shows how the problem of efficiently handling stainless steel sheets was solved by the use of "roller" racks,

(*Please turn to page* 197)

stainless mouldings { • are everbright • can't peel or discolor • are solid, strong and tough!

stainless mouldings fabricate better, deliver maximum consumer benefit, when you choose and use precision-made

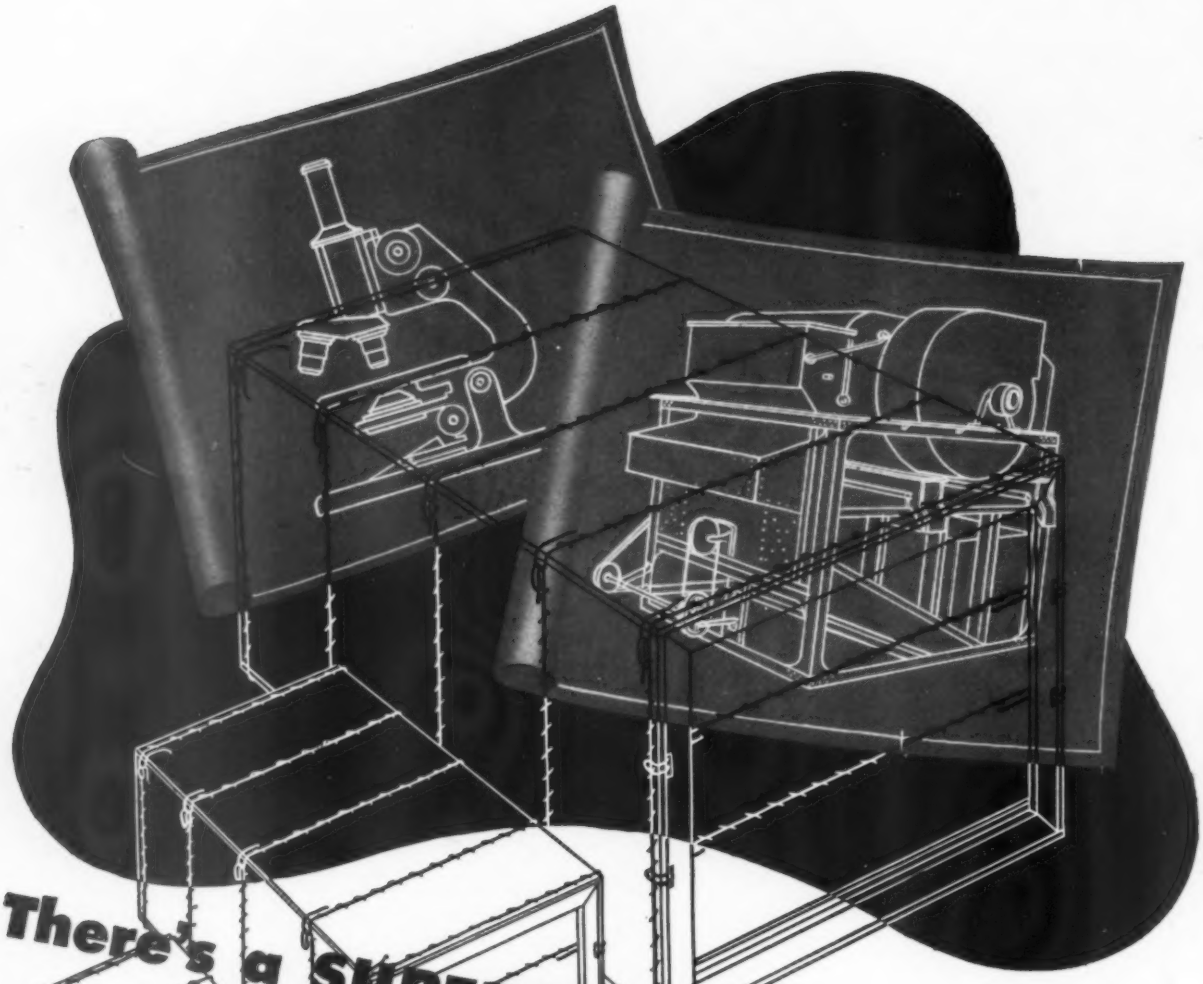
Superior STAINLESS STRIP STEEL

Because SUPERIOR Stainless Strip Steel handles more easily in mouldings manufacture, you enjoy an extra advantage . . . and easier handling is a built-in factor because we have the specialist's *know-how*. We produce only strip steels . . . to strictly-maintained standards of quality and precision in every grade, temper, dimension and finish . . . SUPERIOR through and through!

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA



There's a SUPERSTRONG built for you

You don't have to ask if there is a SUPERSTRONG box or crate for your product —you just know there is!

SUPERSTRONGS, you see, do not come in a few standard shapes and sizes. Our engineering department makes a study of the requirements of your product—and then designs a shipping container custom-built to those requirements.

Your good product deserves a good container. SUPERSTRONGS—"Bound with Steel"—are just the thing.

SHIPPING TRADE MARK SUPERSTRONG CONTAINERS REG. U.S. PAT. OFF.

RATHBORNE, HAIR AND RIDGWAY COMPANY

1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

(*Continued from page* 194)

which afford maximum accessibility to a wide range of grades of sheets. Stacking

Roller racks afford maximum accessibility to wide range of stainless steel sheets.

is entirely eliminated. Protective packing materials are utilized throughout warehouse handling.

RESIN-LATEX LABEL ADHESIVE FEATURES PERMANENCY

A synthetic resin-latex emulsion cement produced by Paisley Products, Inc., 1770 Canalport Ave., Chicago, is said to have the ability to permanently adhere ungummed paper labels to a wide variety of surfaces and surface finishes.

Paisley 1707 used for adhering instruction label and circuit diagram on back of refrigerator.

Designated No. 1707, it is offered for fastening instruction labels, circuit diagrams, caution and brand labels to electrolytic tin plate, terne plate, varnished, lacquered, painted and enameled surfaces. The company states that it is also suitable for many combining and laminating operations on similar and dissimilar materials, such as cork to metal, felt to cardboard, paper to glass, many plastics, and other applications.

It is claimed that paper labels, when pasted on painted test panels with the adhesive, maintain good adherence to the specified surface when aged at 225° F. for seven days and when exposed for 100 hours at 100% RH at 100° F.

The adhesive can be reduced with water or used as received. Application is by hand brushing or with table model gumming machines.

(*Please turn to page* 198)

ESTIMATE GULF 1948 PURCHASES AT $300,000,000

Purchases of goods and services totaling approximately $300,000,000 will be made by Gulf Oil Corporation in 1948 in support of its program for increasing oil production, refining, and distribution, Donald G. Clark, director of purchases, estimated recently.

The figure, which includes all goods and services bought outside the organization with the exception of refined or crude oil, represents one of the largest purchasing expenditures in the Corporation's history.

This trend is typical of the industry. The oil companies—pictured by the public as primarily marketers—are becoming one of the nation's major buying groups, Mr. Clark said, as a result of expansion plans to meet the current unprecented demand for oil.

300 Purchasing Employees

The scope of Gulf's buying will range from such diverse items as windmills to blackboards, thimbles to locomotives, and molasses to housing projects. Number of items purchased is so large, that a buying staff of 125 persons is employed in the central purchasing office, and some 175 additional in branch offices, to handle the volume.

Major purchase item, and major problem, is currently the purchase of pipe for oil wells, oil transport, and refineries. The organization's requirements for the coming year are estimated at approximately 250,000 tons of pipe, while present prospects show only 80,000 tons available.

To illustrate the magnitude of the pipe need, Mr. Clark cited a recent order of the purchasing department which involved a shipment of a trainload of pipe every day for a period of three weeks.

To help fight the oil scarcity, major purchasing efforts will be devoted to overcoming one of the contributing causes, namely lack of sufficient transport. Additions will be made to the Gulf fleets of 36 tankers and 59 coastwise vessels, 1500 tank cars, and 4000 trucks and automotive vehicles, down to large numbers of bicycles and row boats.

Many millions of dollars will be allocated to the expansion of refineries to enable handling increased volumes of crude, and to add equipment capable of producing larger percentages of high quality petroleum products from the raw oil.

Supplies For Foreign Outposts

From the human interest viewpoint, one of the most important purchasing jobs lies in assuring an American standard of living to outposts abroad.

Commissaries are furnished with all the staples of life not purchasable at such locations—and this often means everything from food, soap, clothing, sporting goods, medical supplies to kitchen ware. At Christmas time, the Corporation turns Santa Claus to provide Christmas trees and ornaments to sustain morale.

In some instances, even homes must be provided. In Venezuela whole villages, complete with community buildings, are being erected by the Corporation. Similar housing is planned in the Middle East. Prefabricated houses are used for the most part, shipped from the United States.

Exploring expeditions must be supplied for almost all types of climate and terrain. For their transportation needs alone, the purchasing department must stand ready to furnish anything from airplanes to marsh buggies to mules and shoes.

One of the headaches of supplying foreign operations with machinery and goods is the high incidence of breakage and pilferage in some parts of the world, Mr. Clark said. Costly delays, as well as the expense of replacement, often result from loss of scarce goods.

Passing the outgoing shipments, a considerable volume of foreign goods are imported by Gulf, including such diverse items as burlap from India, chrome and antimony from China. Most exotic import is pyrethrum flowers, a poppy-like bloom from Africa which supplies one of the most effective killing ingredients used in insecticides.

A wide variety of scientific equipment and instruments must be purchased for field, refinery and laboratory. Often parts and materials are bought to enable the company to build instruments it has developed and which are not yet on the market.

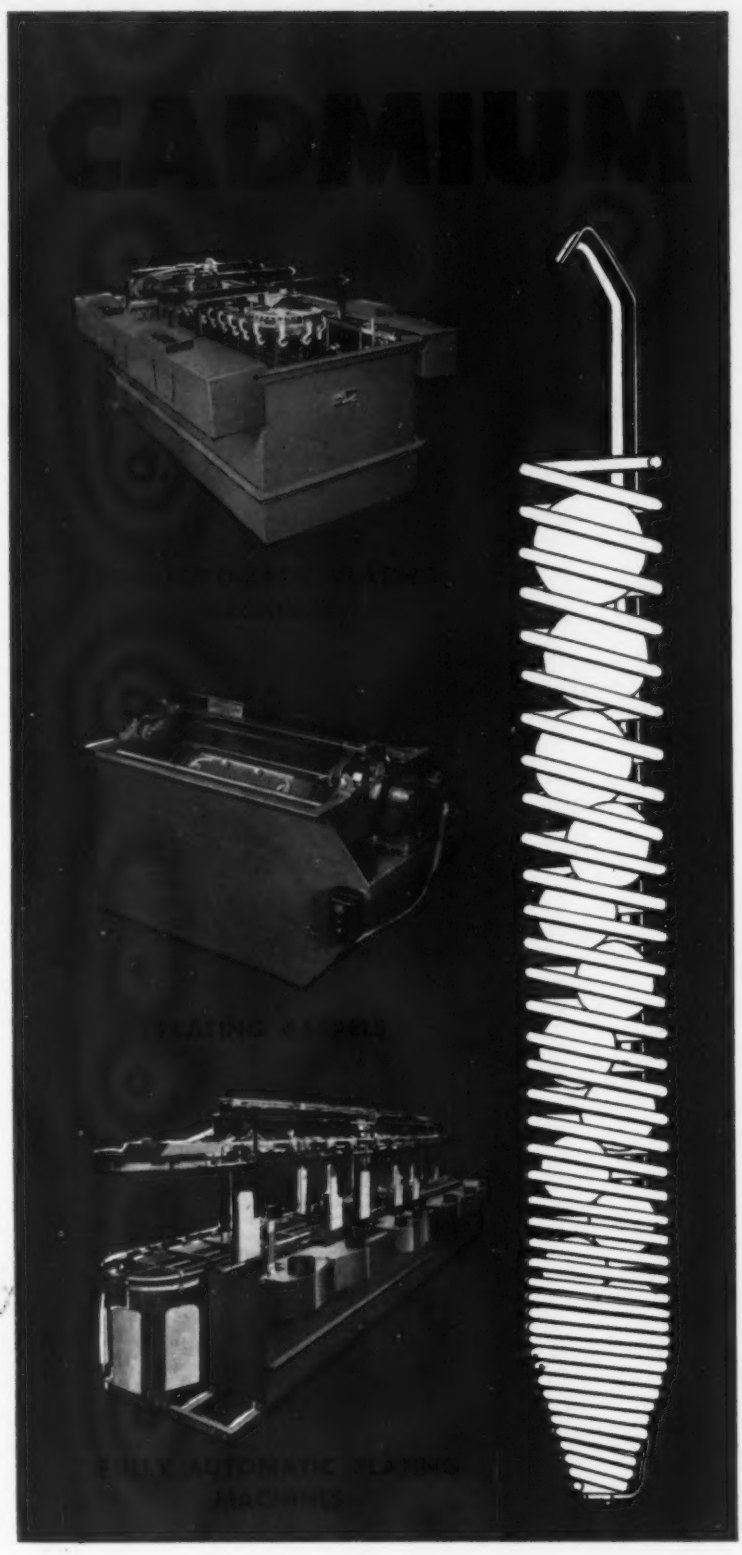
Canaries and House Flies

Among some of the surprising items purchased are canaries, to give alarm for dangerous gas in laboratory experiments; house flies for insecticide testing; cannon to breach oil tanks in case of fire; hoes and rakes for workers garden projects; dyes to color gasolines; household furniture to experiment with petroleum polishes; and hundreds of other items for each letter in the alphabet, from alcohol to zeolites.

Purchasing for an oil company, Mr. Clark concluded, is different psychologically than for many other types of industry. The purchasing function has become more than normally that of expediting production.

For instance, he said, getting a new well flowing several days earlier may represent greater benefits to both consumer and producer than taking a lower bid but later delivery date on the equipment needed.

IS YOUR PURCHASING DEPARTMENT UNDERSTAFFED? YOU CAN FIND JUST THE MAN (OR WOMAN!) YOU ARE LOOKING FOR BY GLANCING THROUGH THE CLASSIFIED COLUMNS . . . UNDER "POSITIONS WANTED"
SEE PAGE 316



CADMIUM IS BACK.

AND UDYLITE HAS IT!

•

For the first time in several years, cadmium is available in sufficient volume to re-assume its place of importance in electro-plating.

The surest, most efficient way to put cadmium back to work in your shop is to consult Udylite . . . originators and leaders in the field of cadmium plating equipment, supplies and techniques.

Udylite now has cadmium available in ball anodes or in any other form best suited to your requirements. A Udylite Technical Man will gladly consult with you about any phase of cadmium plating . . . or any other problem in electro-plating. Write, wire or telephone The Udylite Corporation, Detroit 11, Michigan.

Offices in Principal Cities

PIONEER OF A BETTER WAY IN PLATING . . .

TESTED SOLUTIONS • TAILORED EQUIPMENT
AUTOMATIC CONTROL IN METAL FINISHING

THE Udylite CORPORATION

CONFERENCE ON MATERIALS HANDLING TO STUDY COST REDUCTION

More than a dozen topics of vital interest to top management executives will be discussed at the Conference on Materials Handling which will be a feature of the second National Materials Handling Exposition to be held at the Public Auditorium, Cleveland, O., Jan. 12-16, inclusive.

The major theme of the discussion is cost reduction through improved handling and discussion subjects have been selected for their widest appeal from the practical, operating standpoint. With material and labor costs at all-time highs, reductions in the expenses of handling—a completely non-productive operation—represent one of the few fields for savings still open. Discussions will include all phases of the handling operations, from the viewpoint of manufacturer, distributor, jobber and retailer, and will include problems of warehousing and shipping.

Concurrently with the exposition and conference, the management division and materials handling division of the American Society of Mechanical Engineers will meet in Cleveland Jan. 13 and 14 for a series of technical and professional presentations on materials handling subjects.

Approximately 180 exhibitors will show hand trucks, lift trucks, conveyors, hoists, monorails, portable elevators, stacking units, tractors, trailers, fork trucks, skids, pallets and their respective accessories. A materials handling theatre will exhibit films on handling subjects.

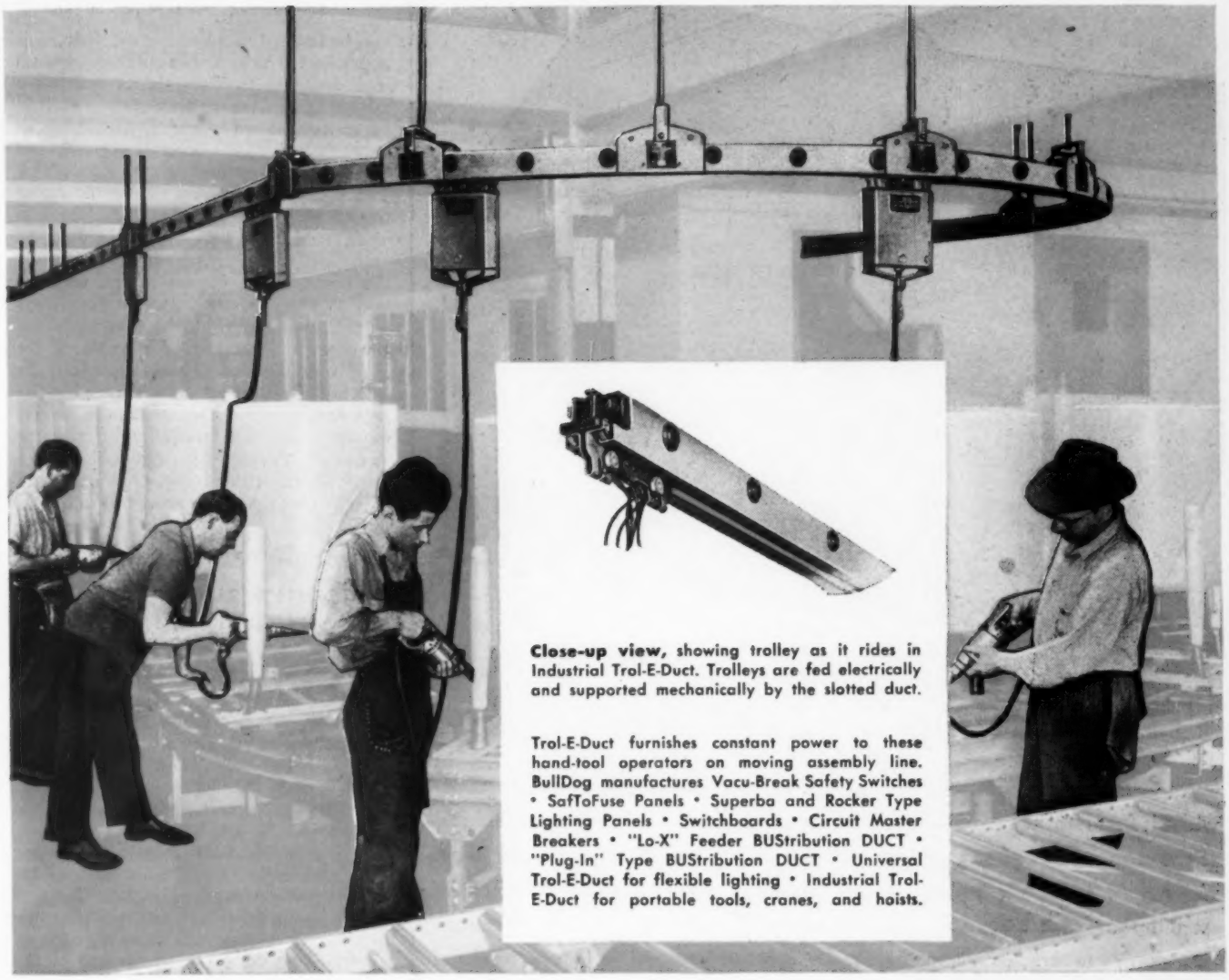
* * *

THAT HEATED ROAD

"A year ago the press gave an unexpected amount of attention to the little engineering adventure at our Bridgeville plant near Pittsburgh," reports the American Cyanamid Co., where, in building the entrance driveway, we installed hot water pipes through the concrete to prevent accumulation of snow and ice. In size of installation this seems to have been a pioneer and it is pleasant to record now that the first winter's experience with it, which included on 13-inch snowfall, was a complete success. There was no resort to plows or shovels, the snowflakes melted and evaporated as fast as they fell and the road presented the odd sight under the falling snow of remaining not only clear but dry! It does not take much warmth to melt snowflakes and snow falls rather slowly as a rule and in air temperatures that are not bitterly cold. So nothing extraordinary in the way of heat was necessary and waste factory steam heated the water in the pipes adequately at no cost.

"The road was two-lane, 16 feet wide and 600 ft. long on a considerable grade with curves, with heavy traffic, and dangerous, if icy. It was imperative that the road be kept usable in all weathers. Welded 2-inch wrought iron pipes were

(*Please turn to page* 202)



Close-up view, showing trolley as it rides in Industrial Trol-E-Duct. Trolleys are fed electrically and supported mechanically by the slotted duct.

Trol-E-Duct furnishes constant power to these hand-tool operators on moving assembly line. BullDog manufactures Vacu-Break Safety Switches • SafToFuse Panels • Superba and Rocker Type Lighting Panels • Switchboards • Circuit Master Breakers • "Lo-X" Feeder BUStribution DUCT • "Plug-In" Type BUStribution DUCT • Universal Trol-E-Duct for flexible lighting • Industrial Trol-E-Duct for portable tools, cranes, and hoists.

These trolleys save more than carfare

. . . considerably more, in fact!

You can fatten your wallet on the savings you get with BullDog Industrial Trol-E-Duct . . . and breathe easier, too, as production headaches walk out of your life.

Your outlet follows the job

BullDog Industrial Trol-E-Duct is a flexible electrical system. Current is carried by copper bars encased in insulated steel duct. Trolleys, moving along the continuous slot in the bottom of duct, transmit current from bus bars to portable electrical tools, cranes, hoists and other moving "loads." Since outlets (trolleys) move with the job, no lengthy extension cords clutter the floor and men work unimpeded.

Ideal for assembly lines

Electrical outlet problems for assembly lines are solved with BullDog Industrial Trol-E-Duct. The slot in the bottom of Trol-E-Duct casing is continuous through straight sections, fittings, around curves . . . a safe, smooth path for the outlet (trolley) which follows the worker and his job. Whether he operates a hand tool, a hoist, or even a crane, Trol-E-Duct makes the job easier, saves time, and increases production.

Call in a BullDog Field Engineer for data on this remarkable power distribution system. He'll be glad to advise you in any way. If you'd like, he can arrange to show you a similar installation near your own plant.

BullDog's Field Engineers welcome the chance to sit in on planning stages of a building project. Their knowledge of electrical distribution layout can mean savings in installation and maintenance costs, as well as highest efficiency and reliability in actual operation. Why not take advantage of this pre-building service?

BULLDOG ELECTRIC PRODUCTS COMPANY
DETROIT 32, MICHIGAN • FIELD OFFICES IN ALL PRINCIPAL CITIES
IN CANADA: BULLDOG ELECTRIC PRODUCTS OF CANADA, LTD. TORONTO

BULLDOG

HEADQUARTERS FOR ELECTRICAL DISTRIBUTION

(*Continued from page* 200)

run in four pairs following the four logical wheel tracks. The heating system was designed to pump in 50 gallons a minute at an average temperature of 165° F, enough, it was figured, to dispose of snow falling at the rate of an inch per hour, or ice forming at the rate of 0.1 inch per hour, covering all but the rarest conditions in this climate. Wrought iron pipes were used because they were corrosion-resistant, they had approximately the same rate of expansion and contraction as the concrete in which they were buried, and they could be bent to follow the curves accurately. Air vents at the high end were provided to prevent air lock and drain cocks were installed at the low end. Anti-freeze solution was employed; this and a trifle of electric power to operate the pump for circulation when required, constituted the only operating cost to provide safe dry access all winter."

COMPLETE SALE OF BIG INCH AND LITTLE INCH PIPE LINES

A final payment of $138,027,000 for the Big Inch and Little Big Inch pipelines was made recently to War Assets Administration by the Texas Eastern Transmission Corporation which purchased the lines last February from WAA with a top bid of $143,127,000.

Climaxing the transaction, which is the largest sale in surplus property history, WAA Administrator Robert M. Littlejohn personally signed over the properties to the corporation in New York.

The corporation will use the pipelines to transmit natural gas from Texas and Louisiana to the Appalachian and Philadelphia areas.

The lines originally cost the Government $145,800,000 to build but WAA received bids far below that figure when the lines were first offered for sale. Administrator Littlejohn rejected all bids and called for new ones. As a result, the Government obtained a return of nearly 100 percent of the original cost of the property.

PAPER TUBES

An improved method of forming square and rectangular paper tubes is now used by the Precision Paper Tube Co., 2023 W. Charleston Street, Chicago 47, Illinois. Precision tubes are widely used in electrical and electronic industries as dielectric coil bases. The tubes are now pressure formed at no additional cost, as an integral part of the tube producing process, where heretofore a separate operation was involved at additional cost.

The tubes are forced through a heated die, producing a "square" shaped tube, ending practically all side bow. Additional important advantages of pressure forming are (1) improved adhesion of the laminated papers and increased strength; (2) permits automatic stacking; (3) ends the necessity of forming

(*Please turn to page* 204)

MEET THE BIG 4

YOUR PARTNERS IN PRODUCTION

Here are the Seymour alloys and plating materials, so outstanding in performance, that they are virtually "partners" to the success of thousands of products. They merit your careful reading of the brief descriptions below—which we will gladly amplify and relate to your particular problem.

SEYMOUR NICKEL SILVER

A wide ductility range makes this the perfect alloy for spinning, drawing and stamping. Its silvery white color makes it an excellent base for silver, nickel and chromium plated ware; eventual wear leaves no unsightly area. It has the ideal even grain for the acid etching process, being free of "orange peel" effects and other blemishes. When leaded for free cutting, it has unsurpassed workability.

SEYMOUR NICKEL ANODES

Made of virgin nickel in modern electrical furnaces. Casting is done under accurate pyrometric control and careful laboratory check. Special grain structure reduces sludge and loose nickel to a decided minimum. Made in all standard shapes and formulas, or to special order. Seymour Anodes are also made in copper, brass, bronze and zinc.

SEYMOUR PHOSPHOR BRONZE

Its high corrosion resistance solves most salt water and dampness problems. It has remarkable fatigue properties; in spring form (one of its principal uses) it undergoes hundreds of thousands of flexures without impairment. Such springs have almost endless life! Its extreme toughness makes it a dependable alloy for small bearings. Seymour Phosphor Bronze is also available in welding rods, grades A, C and D.

SEYMOUR BRIGHT NICKEL

A hot organic type process free from promoter metal, stable, easily controlled. Produces brilliant deposits from a standard Watts bath without the usual coloring or buffing. Excellent throwing power. Wide operating conditions. No wetting agents. Plates deep recesses. Perfect adherence.

THE SEYMOUR MANUFACTURING COMPANY, SEYMOUR, CONN., U.S.A.

NONFERROUS ALLOYS SINCE 1878

SEYMOUR

(*Continued from page 202*)

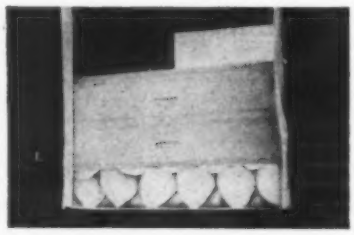
coils after winding; (4) cores can be engineered closer to stack size resulting in greater wire economy; (5) allows more uniform coils.

All Precision paper tubes are now being pressure formed and supplied as standard.

CAR DOOR STRIPS REDUCE FREIGHT SHIPMENT LOSSES

A car door retaining strip which replaces the conventional type door barricade, has been perfected and tested by Signode Steel Strapping Company, 2602 North Western Avenue, Chicago 47, Ill.

This version of standard doorway blocking uses instead of lumber, strips of laminated, heavy-duty, water-repellent Kraft liner board, reinforced with ¾" x .020 Signode steel strapping, nailed across the door opening inside the car. The strips may be butted, overlapped or spaced for maximum efficiency, depending upon the characteristics and weight



of the load. The average dunnage for a car door will range from 10 to 20 lbs., it is said. Retaining strips measure 18" x 84".

The method is said to eliminate damage to cartons, boxes, bags, etc. from snagging and ripping on sharp edges and corners and protruding nails. Unloaders need only snip the steel bands on the retaining strips instead of "knocking in" doorway barriers, it is claimed, thereby lessening chances for damage to containers piled near the doorway.

"HOW TO RUN A LATHE"

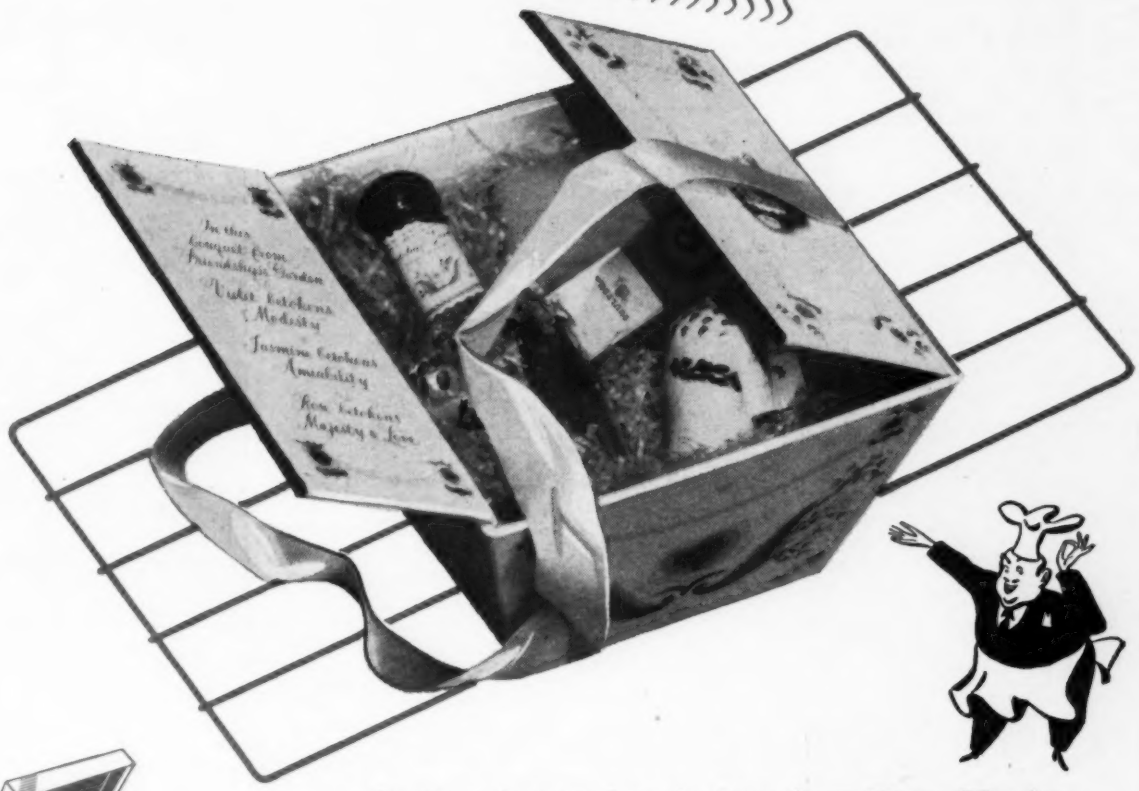
The South Bend Lathe Works, 309 East Madison Street, South Bend, Ind., announces publication of the 45th edition of its book "How to Run A Lathe". A number of changes in text material and illustrations have been made since the 1944 edition was printed.

The new book covers such subjects as the operation of the lathe units, grinding cutter bits, making accurate measurements, plain turning, chuck work, taper turning, boring, drilling, reaming, tapping, cutting screw threads reference tables, etc. It is widely used by machinists and as a shop text in schools and apprentice trainin courses.

This edition contains 128 pages—5⅛" x 8", and over 365 illustrations. Postpaid copies are available with paper covers for 25¢ (U.S. Coin) or with leatherette covers for $1.00.

"DON'T SELL THE STEAK SELL THE SIZZLE"

SSSSSSSSSSSSS



That's a favorite bit of advice from Elmer Wheeler, nationally-known salesman and public speaker. And it's good advice, too. For the exciting sizzle, with its accompanying appetizing aroma, stimulates the sense of hearing and smell—helps to sell that steak.

Yes, and a set-up box has a selling sizzle, too —the sizzle of eye appeal. That's because a set-up box is colorful and attractive in design. What's more, its many re-use possibilities give it an unequalled take-home value. Small wonder, then, that the set-up box helps to sell more merchandise than any other container.

So give your product the added advantages of the point-of-sale preference and excellent product identification which a set-up box offers. Specify set-up boxes for your 1948 packaging requirements.

FOR INFORMATION OR SERVICE • CONSULT YOUR NEAREST SET-UP BOX MANUFACTURER

NATIONAL PAPER BOX MANUFACTURERS Association

AND COOPERATING SUPPLIERS

Liberty Trust Building, Philadelphia 7, Penn.

Among the ASSOCIATIONS

Ward Stevens Heads Connecticut Association

Two Hundred Members and Guests Attend Thanksgiving Dinner at Seymour

Ward F. Stevens, Connecticut Mutual Life Insurance Co., Hartford, was elected president of the Purchasing Agents Association of Conecticut at its annual Thanksgiving dinner meeting on Tuesday, November 25, in the Swan Memorial, Seymour, Conn.

Almost 200 members and guests attended the affair and enjoyed its traditional festivity, good cheer, and fine food. As in former years, the ladies of the

Retiring President W. A. Towle, Jr. becomes National Director

local Congregational Church prepared and served a New England style Thanksgiving dinner under the direction of Mrs. Fred G. Space, wife of the chairman of the event. The amounts of turkey, cranberry, stuffing, etc. consumed testified to the success of their efforts, and to make it official the well-satisfied group gave a standing vote of thanks to the ladies at the close of the meeting.

Other officers chosen include: Raymond Bingham, International Silver Co., Meriden, 1st vice-president; Dwight Merriman, The Stanley Works, New Britain, 2nd vice-president; Fred A. Harvey, the Ansonia O & C Co., Ansonia, secretary; Roy E. Sargent, C. H. Dexter & Sons, Inc., Windsor Locks, treasurer; W. A. Towle, Jr., Bristol Hospital, Bristol, national director. Directors are: F. R. Sanford, O. K. Tool Co., Shelton; William Stratford, Bridgeport Thermostat Co., Bridgeport; Robert Brown, Robertson Paper Box Co., Montville; Thomas F. Daly, Parker Stamp Works, Hartford; Thomas J. Latham, R. Wallace & Sons Mfg., Wallingford; Carl Borg, Tuttle & Bailey Co., New Britain; Eugene Emigh, United Illuminating Co., New Haven; and John Lally, Chase Brass & Copper Co., Waterbury.

Joseph C. Andrews, vice-president of the National Association of Purchasing Agents for District 9, spoke briefly on the accomplishments of the recent district conference in Springfield, Mass. He complimented those responsible for the success of the conference, including Connecticut members W. J. Roemer, retiring national director, and Robert Swanton, chairman of the N.A.P.A. Business Survey Committee. W. A. Towle, Jr., who presided at the meeting, informed the gathering that Mr. Roemer was recovering from a recent illness and would soon be back at his desk.

Speaker of the evening was George A. Renard, executive secretary of the nation-

National Secretary George A. Renard warned purchasing agents to consider their own fundamental problems first

al Association of Purchasing Agents, on the subject "From One P.A. To Another". Mr. Renard reviewed the social and political developments that have taken place in this country during the past twenty years or so resulting in entirely new conceptions that old time methods of business analysis could not cope with. He warned his listeners not to be merely purchasing agents, but *good* purchasing agents by concentrating on timing—

L. to R., Roy Sargent, William Horowitz, Fred Harvey, Joseph C Andrews and W. A. "Tony" Towle

GOULD PLUS PHILCO EQUALS BETTER DELIVERIES

Pictured at right—Six tons of dependable, stop-and-go power for the largest ram trucks ever built.

Another way you profit by the GOULD-PHILCO merger*

Write for Catalog 100 on Gould Batteries for Industrial Trucks.

Two great factories—one at Depew, N. Y. and the other at Trenton, N. J.—mean that Gould can better protect you on deliveries, regardless of fire, material shortages or shut-downs.

Through the combined "know-how" of the two factories, you benefit with the most advanced plant and engineering developments.

The Gould-Philco merger means better deliveries, better batteries—and better service.

No wonder Gould is more than ever the Choice of Engineers.

*The Storage Battery Division of Philco Corporation was merged with the Gould Storage Battery Corporation on June 28, 1947. The consolidated organizations are operating under the name of Gould.

GOULD

"Thirty" and KATHANODE **BATTERIES**

Gould Storage Battery Corporation
Including the Philco Corporation, Storage Battery Division
Depew, New York Trenton, New Jersey
Sales and service representatives in thirty-one principal cities

Officers and directors for the coming year: (Seated left to right); J. C. Andrews, vice-president, N.A.P.A. for District 9; Dwight Merriman, 2nd vice-president; Ward F. Stevens, president; Raymond Bingham, 1st vice-president; W. A. Towle, Jr., national director. (Standing, left to right): Fred A. Harvey, secretary; William Stratford, Robert Brown, directors; Roy E. Sargent, treasurer; Carl Borg, Thomas F. Daly, John Lally and F. R. Sanford, directors.

"knowing when to buy and how much to buy", leaving to others the philosophy of "fearing the worst, or banking on the best".

Mr. Renard emphasized that in view of the economic confusion that exists at the present time, the logical procedure for the purchasing agent is to give some consideration to his own fundamental problems of seeing that he has enough material on hand to take care of production today and of inventories for tomorrow's needs. "If you can do that" he said, "there is no time left or room for speculation in materials."

"I do not know of any reports on materials or commodities or business conditions that equal the solidity of the reports made by our own Business Committee," he stated. "They are close to the present picture, and as a result they the dependably accurate. The report consists of the opinions of 200 of the country's leading purchasing men. If you study those opinions and gauge your activities accordingly you cannot go far wrong. It is the best guide you have. It is right in front of you. Use it."

"This is not time to load up on commodities you can easily get," Mr. Renard said. "By all means avoid getting back into an unbalanced inventory situation. Your problems are in steel, coal, fuel oil and lumber, and not in postwar developments. Instead of worrying about international relations get back to fundamental purchasing—that is your job. Too many people are fooling around with things that are not problems of their jobs. The big thing is to pay attention to your job and its requirements."

Fred G. Space, Seymour Mfg. Co., Chairman and host of the affair.

The traditional festivities and refreshments brought wide smiles of anticipation and satisfaction from members and guests.

CAROLINAS-VIRGINIA ASSOCIATION 28TH ANNUAL MEETING

The Carolinas-Virginia Purchasing Agents Association held its 28th annual meeting at the Hotel Charlotte, Charlotte, N. C., December 5th-6th.

New officers elected for the coming year are R. A. McQuiston, Assistant Purchasing Agent for Thomasville Chair Co., Thomasville, N. C., president; Tucker McCravy, Purchasing Agent for Pacific Mills, Lyman, S. C., vice-president; and J. E. Doxey, Purchasing Agent for Duke University, Durham, N. C., re-elected secretary. C. F. Williams, The Erwin Cotton Mills Co., Durham, N. C., becomes national director.

The meeting began with a closed business session on the 5th presided over by President C. F. Williams, followed by a closed general forum with R. C. Haberkern presiding. The next feature was an informal industrial group forum, with the following subjects and speakers: Coal, Fuel, J. Y. Pharr; Governmental, Robert King; Paper and Containers, J. A. McDonald; Textiles, M. K. Thackston; Utilities, W. G. Thomas.

The banquet on the evening of the 5th was dedicated to "Ladies Night and Pre-Christmas Party," with Mr. Williams presiding. The guest speaker was Remmie L. Arnold, president of the R. L. Arnold Pen Co., Petersburg, Va., and president of Southern States Industrial Council, Nashville, Tenn.

The speakers at the December 6th open meeting were: W. G. Leather, executive secretary, National Paper Trade Association, New York, subject "Paper Prospects for the Future"; H. Janney Nichols, Jr., Director of Standard Oil Co. of New Jersey and Manager of Supply & Transportation, New York City, subject, "Supply and Transportation of Petroleum Products Today"; and J. W. Knowlton, economist, Duke Power Company, Charlotte, N. C., subject, "The Kansas Clock."

The secretary reported the addition of 24 new members to the association's roster during the year, in comparison with a loss of 19 members.

DENVER ASSN. WARNED AGAINST "ADMINISTERED PRICES"

Speaking before the regular meeting of the Purchasing Agents Association of Denver, Federal Trade Commissioner Robert E. Freer, recently warned businessmen against subscribing to administered prices through industry programs of self-regulation.

"For some reason, businessmen frequently fall for a proposal to manage the system of freedom of economic enterprise through group action", the commissioner said. "It does not require any great stretch of the imagination to foresee, in the long run, that managed markets, either by businessmen themselves or businessmen under government supervision, must lead ultimately to disappearance of any lines of demarcation between business and government and the

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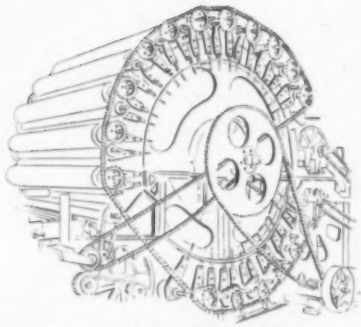
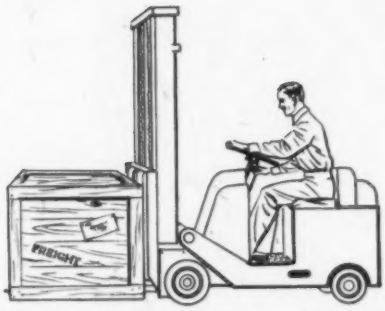
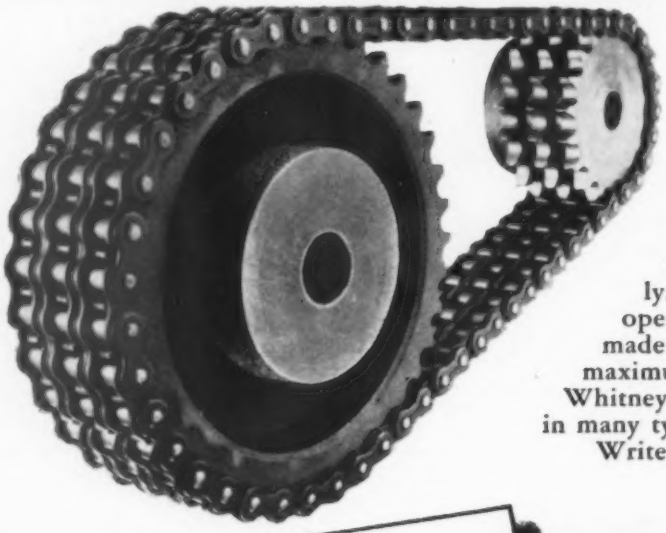


From Textile Machinery



to Materials Handling Equipment



WHITNEY ROLLER CHAINS

These chains deliver constant, full power smoothly and efficiently. They stand up under the severest operating conditions. All parts are made of alloy steel, hardened to give maximum service with minimum wear. Whitney Roller Chains are manufactured in many types, in pitches from ⅜" to 2½". Write for complete specifications.

WHITNEY CHAIN DRIVE IS BETTER

Positive Grip TRANSMITS Full Horse Power

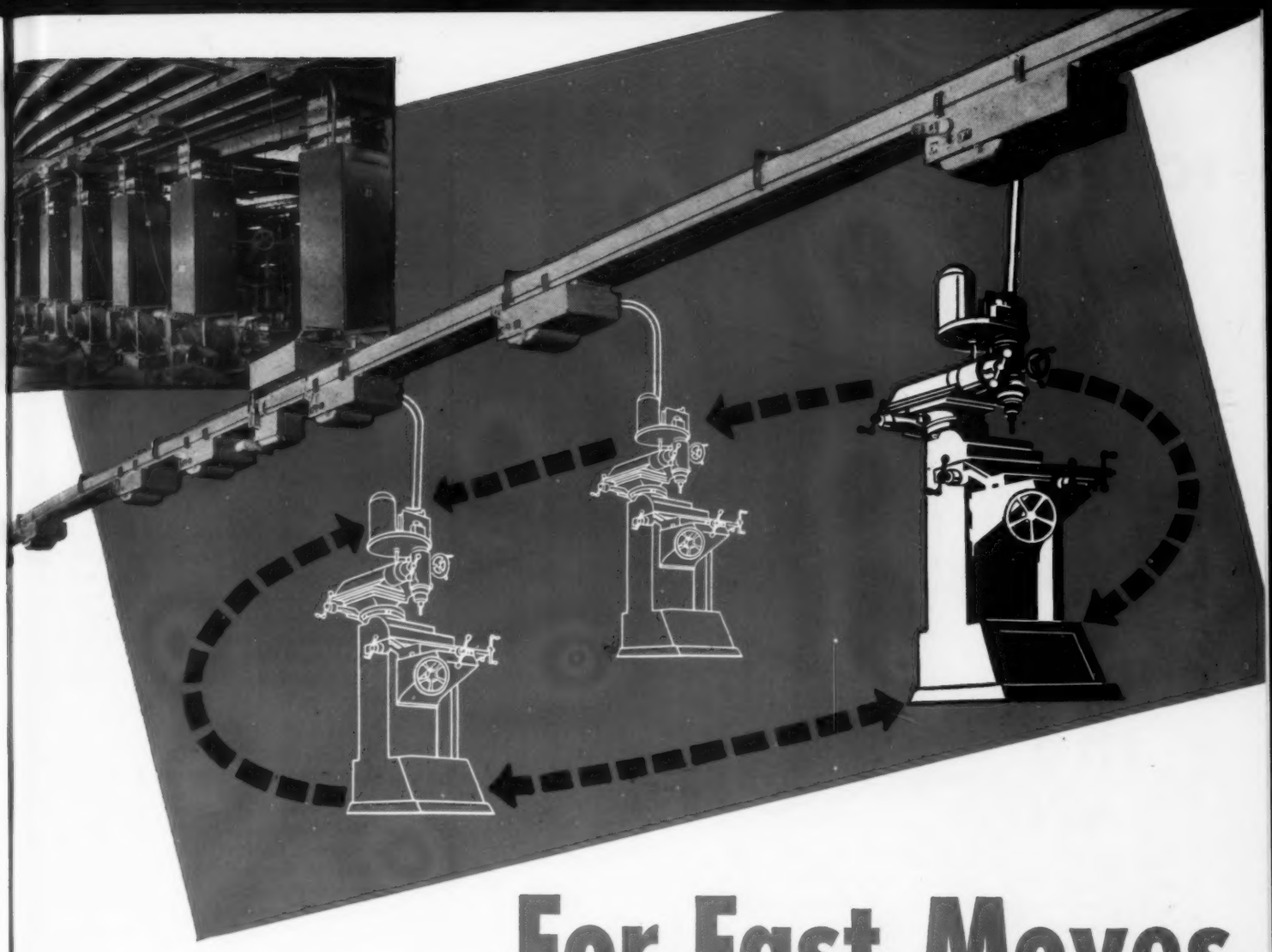
Among the many reasons why designers of all types of equipment incorporate Whitney Chains into their designs is the *positive grip.*

Deeply seated in the drive sprockets, Whitney Chain eliminates power loss because there is *no slippage or frictional loss.* It transmits full rated horsepower to the driven mechanisms assuring highest transmission efficiency. The result, maximum machine productivity . . . highest product uniformity.

In addition, the flexibility and adaptability of Whitney Chain drive simplify design problems. The roller chain construction absorbs shock loads. Its tough rugged construction gives long operating life with minimum maintenance.

Whitney Chains plus Whitney Cut Tooth Sprockets . . . the *all-steel drives* . . . insure positive power transmission. Investigate Whitney Drives for your products. Write:

The Whitney Chain & Mfg. Company
207 Hamilton St., Hartford 2, Conn.



For Fast Moves

Relocate machines with no delays for rewiring

Power can be taken off wherever needed with this convenient, flexible and economical distribution system.

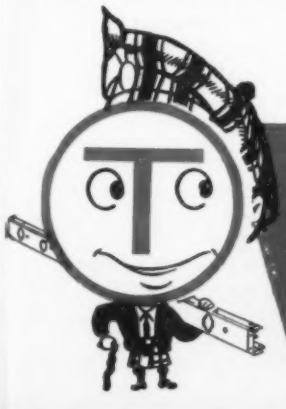
Power where you want it — with Trumbull FLEX-A-POWER Plug-In Busways—gives you maximum flexibility in machine arrangement without the cost and nuisance of rewiring each time you change the layout.

With FLEX-A-POWER Plug-In Busways covering your whole plant, you can move a machine or a whole line of machines with no interruption of power. Convenient outlets every 12 inches permit plug-ins *right at the load.*

Even when major changeovers require moving an entire department, the FLEX-A-POWER system can be moved along, too — dismantled, removed and reinstalled quickly, with practically 100% use of all materials.

That's because every part of a Trumbull Busway System is prefabricated, which of course reduces original installation and construction costs. FLEX-A-POWER is stocked in standard 10 foot lengths and is available in capacities from 250 to 1000 amp. with all necessary fittings and accessories.

Send for Bulletin. THE TRUMBULL ELECTRIC MANUFACTURING CO., Plainville, Conn. Other factories at Norwood, Ohio • San Francisco • Seattle • N. Hollywood. Sales offices and representatives in all important cities.



The OVERHEAD that pays for itself in Cost Reduction

TRUMBULL (T) ELECTRIC

Flex-a-Power

(*Continued from page* 209)

development of the super-state which will tell us all the whats, whens, whys and hows of everything we do."

Movements to repeal the anti-trust laws, programs of self-regulation for industry, or moves for managed markets should be carefully examined to see whether the immediate advantages urged outweigh the prospective paternalism of a controlled economy, Commissioner Freer stated. "Do not let the imperfections in the free competitive enterprise system blind you to the fact that it is the foundation stone upon which is built our American way of life", he added.

ZELOMEK SPEAKS TO WASHINGTON ASSN. ON OUTLOOK FOR 1948

A. W. Zelomek, economist for the International Statistical Bureau and the Fairchild publications, and contributor to the N.A.P.A. bulletin, was guest speaker at the December 2 meeting of the Purchasing Agents Association of Washington, held in the Seattle Chamber of Commerce. Mr. Zelomek spoke on the outlook for 1948.

CENTRAL ONTARIO ASSOCIATION VISITS GOODRICH RUBBER PLANT

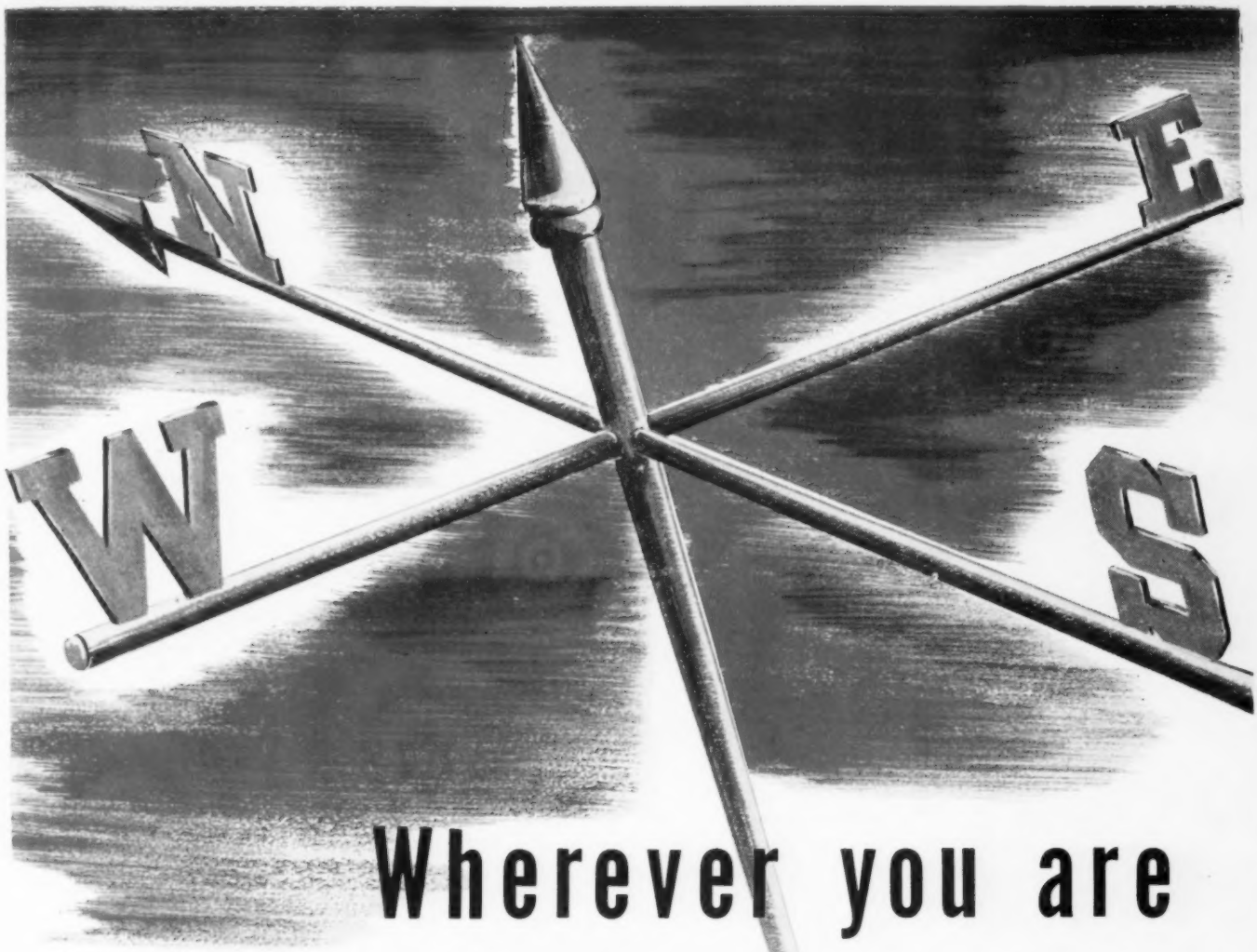
Highlight of the November 25 meeting of the Purchasing Agents Association of Central Ontario was a visit to the factory of the B. F. Goodrich Co., in Kitchener. Following the plant visit, Gordon Wright, assistant engineer of the company, was the guest speaker at the dinner session of the meeting. Mr. Wright's topic was "Lost—A Generation". He discussed the exodus of the best professional and technical personnel of Canada to the United States, and the reasons behind it. He recommended the system of job evaluation in Canada to avoid overstaffing and to make sure the proper person is hired for the job. The resulting economies would enable the government to afford more attractive salaries to highly trained personnel, Mr. Wright stated.

Commodity reports were given under the direction of John Wittig, Weber Hardware Co. Ltd. Two new members were introduced—James Sanderson of Eastern Steel Products, Preston, and Ross McMillan of Copper Wire Products, Guelph.

INDIANAPOLIS INDUSTRIAL SHOW FEBRUARY 11-14

The first industrial show sponsored by the Purchasing Agents Association of Indianapolis since the war will be held in the Manufacturers' Building of the state fair ground February 11-14. The District 4 Conference is scheduled for the same date and will be held in conjunction with the show. Dan Young, general chairman of the exhibit stated that many types of indusry will be represented from all over the country, giving a comprehensive display of the numerous innovations developed during the war.

(*Please turn to page* 216)



Wherever you are

...there's a Taylor Forge distributor near you

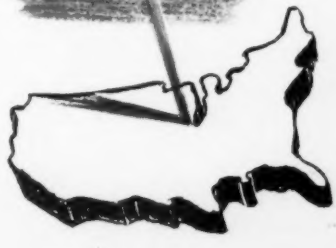
Just as WeldELLS "have everything," WeldELL distribution has everything! In every industrial trading center there is an Authorized Taylor Forge Distributor. One of them near you stands ready to give you prompt delivery from comprehensive local stocks of welding fittings and forged steel flanges for piping systems.

Your local distributor draws upon the accumulated wealth of Taylor Forge engineering knowledge and is in constant touch with strategically located district offices. Your distributor and his staff have been carefully chosen to give you practical advice and the best service in the shortest possible time.

It will pay you to know these people who represent the strong link between you and the finest of welding fittings and forged steel flanges. If you are not acquainted yet, write us.

WeldELLS

TAYLOR FORGE STEEL FLANGES



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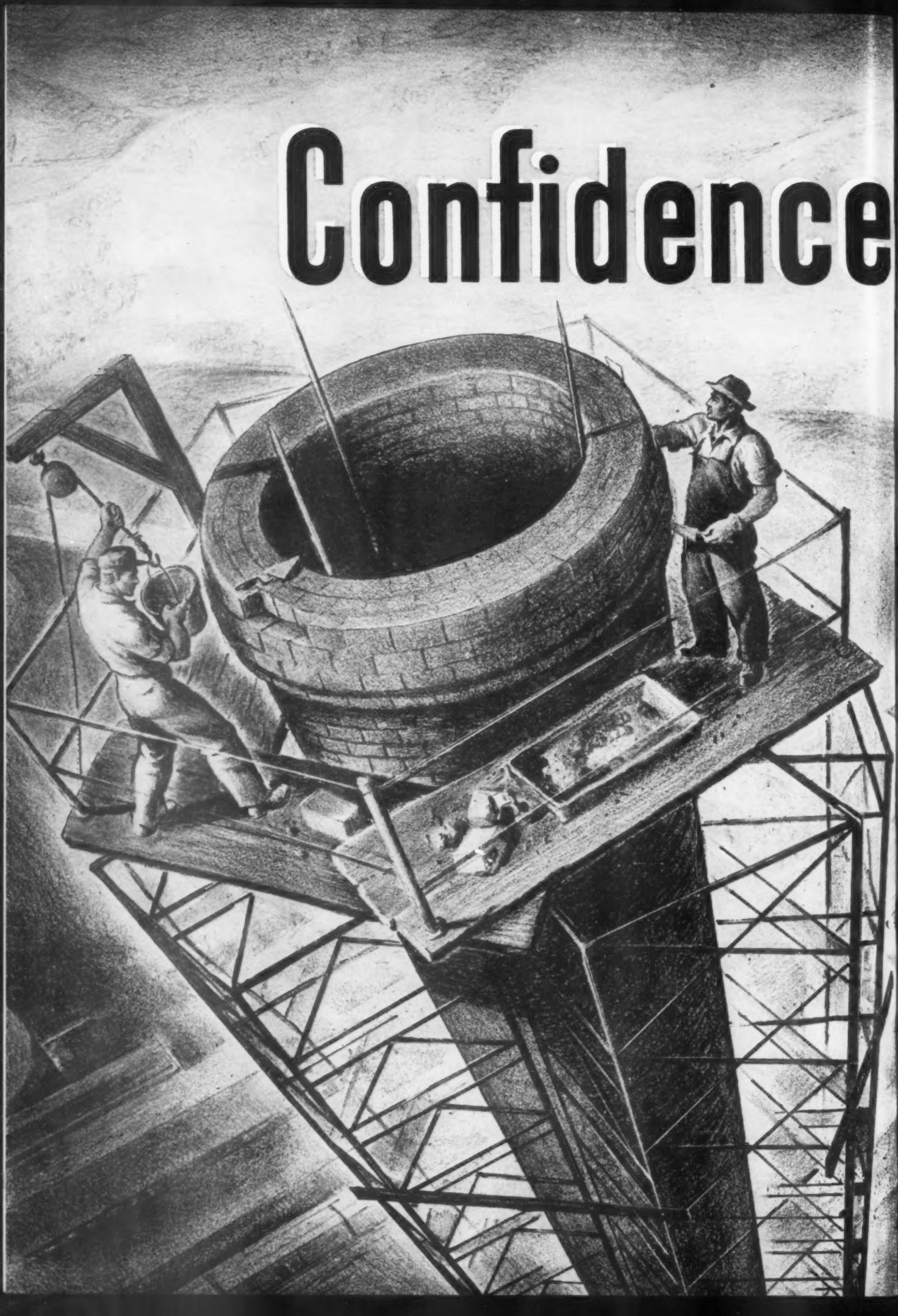
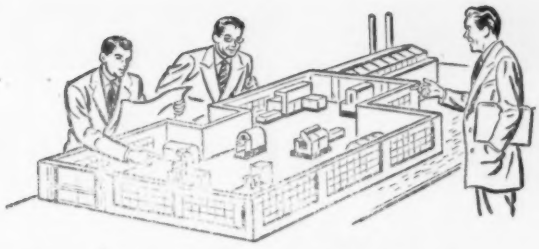
General Offices & Works: P. O. Box 485, Chicago 90

New York: 50 Church Street — Philadelphia: Broad Street Station Bldg.
Los Angeles: Subway Terminal Bldg. — Houston: City National Bank Bldg.
Chicago District Sales: 208 S. LaSalle Street


Confidence-



WITH ITS SLEEVES ROLLED UP!

STRAIGHT AND STALWART, every factory stack is a towering symbol of man's faith in the future . . . industry's confidence in its ability to create and to expand production for better living and a richer world.

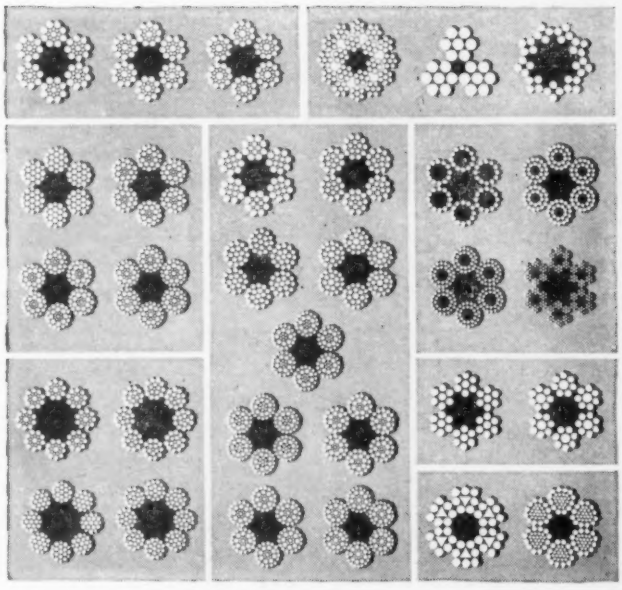
With confidence like that, Roebling has pioneered in developing and making an extraordinary range of products indispensable to industry. And the confidence that its products and engineering skill have earned in every industrial field is one of Roebling's most valued assets. Every Roebling employee is striving to safeguard that confidence by making products and rendering services that are of maximum utility to you.

YOU CAN'T GO WRONG WITH THE RIGHT WIRE ROPE

EVERY TYPE of Roebling Wire Rope is right for certain service. But that's not enough . . . the important thing is that you choose the one rope that's *right* for your own job . . . the rope with the right balance of strength, flexibility, fatigue and abrasion resistance to give real economy over a long period of use.

Your Roebling Field Man will gladly study your requirements, and you can have full confidence that the rope he recommends will give you top returns per dollar. Whatever type it is, preformed or non-preformed, it will have behind it Roebling's unequalled experience in research, development and manufacturing the finest wire products that can be made.

Call or wire the nearest Roebling branch office.



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TRENTON 2, NEW JERSEY

Branches and Warehouses in Principal Cities

★ *WIRE ROPE AND STRAND* ★ *FITTINGS* ★ *SLINGS* ★ *SUSPENSION BRIDGES AND CABLES* ★ *AIRCORD, AIRCORD TERMINALS AND AIR CONTROLS* ★ *AERIAL WIRE ROPE SYSTEMS* ★ *ELECTRICAL WIRE AND CABLE* ★ *SKI LIFTS* ★ *HARD ANNEALED OR TEMPERED HIGH AND LOW CARBON FINE AND SPECIALTY WIRE, FLAT WIRE, COLD ROLLED STRIP AND COLD ROLLED SPRING STEEL* ★ *SCREEN HARDWARE AND INDUSTRIAL WIRE CLOTH* ★ *LAWN MOWERS*

ROEBLING

A CENTURY OF CONFIDENCE

JR ROEBLING

(*Continued from page 212*)

The committee in charge of the show consists of Don Johnson, American Paper Stock Co., chairman of the purchasing agents committee; George Stalker, W. J. Holliday & Co.; Louis Moller, Carter-Lee Lumber Co.; John Casebourne, Esterline-Angus Co.; Russell Patrick, Edgerton Co., and A. N. Phillips, Schwitzer-Cummins Co.

MANILA MAN GUEST OF COLUMBUS ASSOCIATION

Leonard C. Padilla, of Manila, P. I., was the guest speaker at the November 10 meeting of the Purchasing Agents Association of Columbus at the Fort Hayes Hotel. Mr. Padilla spoke on "The Contribution of the Filipinos in World War II". Edward P. Gilmore, of the Ohio State university purchasing department, was elected secretary of the association, replacing Robert Hanby, who has left Columbus to return to Detroit.

TIMKEN ENGINEER TALKS TO CANTON ASSOCIATION

The regular meeting of the Purchasing Agents Association of Canton was held at the Oneston Hotel on November 19. John B. Baker, chief engineer of the Rock Bit Division of the Timken Roller Bearing Company, addressed the group on the development of the removable bit for drilling stone and ore.

He described the Timken bit as a "depression baby" developed in 1932 as a means of using up some of the surplus steel tonnage made available from the expansion of the steel manufacturing facilities in 1929. He traced the use and acceptance of the bit, and its improvement over the years.

The program was in charge of H. A. Grauman. National director M. J. Birzer, Jr. gave a report on national activities and the recent district conference in Cleveland. Karl Folt, president, was in charge of the meeting. New members of the association are: A. D. Burrows, Massillon Steel Castings Co., Massillon, O.; H. B. Fisher, General Electric Supply Corp., Canton; and W. H. McFadden, Moock Electric Supply Co.

COOPERATIVES AND THEIR EFFECT TOPIC AT LOUISVILLE ASSN.

The first regular meeting since the District Conference was held by the Purchasing Agents Association of Louisville at the Kentucky Hotel on Tuesday, November 18. Dr. John Broderius, head of the modern language division of the University of Louisville was a featured speaker. His subject was "Cooperatives and Their Effect On Our Economy". He traced the formation of the first cooperatives in Denmark and their spread first to the other Scandinavian countries and finally to the United States.

President J. T. Kinberger gave a brief report on the results of the recent district conference held in Louisville and

(*Please turn to page 218*)

For Better Appearance of your product use Die Castings

Because DIE CASTINGS have sharp outlines; smallest details are exactly reproduced. Ornaments and lettering are equal to engravings.

Because DIE CASTINGS have smooth surfaces which can be attractively painted, enamelled or electroplated.

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A toy pistol die cast

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Samples furnished through courtesy of Kilgore Manufacturing Co.

DOEHLER-JARVIS CORPORATION

The World's Largest Producer and Finisher of Die Castings

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Executive Office

386 FOURTH AVENUE

NEW YORK 16, N. Y.

(*Continued from page* 216)

complimented the members for their attendance and help. Professor C. W. Williams, head of the economics department of the University of Louisville, gave a report on the current economic situation.

The resignation of H. B. Borders, first vice-president, was announced. His company, The Reynolds Metals Co., has moved to Chicago. Two new members were introduced: Peyton T. Talbott, Schuler Axle Co., Inc. and R. G. Guimaraes, Rowland Paper Co.

CITY OFFICIAL SPEAKER AT ALABAMA ASSOCIATION

The Purchasing Agents Association of Alabama held its regular monthly meeting on Thursday, November 20 at the Thomas Jefferson Hotel, Birmingham, Ala. Hon. Cooper Green, president, City Commission of Birmingham, spoke on "Western Europe and England As I Saw It".

On Monday, November 24, members of the association met by invitation with the Association of Iron & Steel Engineers. Harlan E. Cross, General Purchasing Agent, Sloss-Sheffield Steel and Iron Co., and past president of the National Association of Purchasing Agents, was guest speaker before the group, with the subject "The Purchasing Agent's Changing Status".

The association's annual Christmas Party was held at the Mountain Brook Country Club on December 17.

"TRENDS IN THE PAPER INDUSTRY" AT ST. LOUIS ASSOCIATION

The Purchasing Agents Association of St. Louis held its regular monthly meeting at the Hotel Sheraton-Coronado on Tuesday, November 25. Cephas B. Sitterson, Jr., assistant secretary of The Institute of Paper Chemistry, Appleton, Wis., spoke on "Trends In The Paper Industry". The "Know Your Member Companies talks were resumed at this meeting, featuring Robert F. Toma who told about his company, the National Lead Company, Titanium Division. D. M. Baker, chairman of the commodity committee, gave the commodity reports. Prior to the general assembly and open forum was held, led by R. J. Brockman and Walter J. Wallace.

The annual association Christmas party was held in the Gold Room of the Hotel Jefferson on Saturday, December 13. Lee Bussmann was the toastmaster, and music was supplied by Herb Mahler and his orchestra. Members' ladies were guests of the association.

TOLEDO ASSOCIATION VISITS WILLYS PLANT

The Purchasing Agents Association of Toledo held a plant visit at the Willys Overland Motors Corp., Toledo, on Tuesday, December 2, watching the famous "Jeep" being built from headlight to tail light. The visit was arranged by the factory visitation committee, Robert Heck-

(*Please turn to page* 220)

(*Continued from page* 218)

er, Carl Recker and Ray Chase. The annual Christmas party of the association was held on Saturday, December 13.

Gordon S. Yost, formerly purchasing agent at the Toledo Scale Co., and a former District 6 vice-president, recently resigned his position to become sales representative for the Egyptian Lacquer Mfg. Co.

TAFT-HARTLEY LAW SUBJECT AT INDIANAPOLIS MEETING

The regular meeting of the Purchasing Agents Association of Indianapolis was held on November 16 at the Columbia Club. Byron L. Stewart, director of labor relations for the Delco-Remy division, General Motors Corp., Anderson, Ind., was the guest speaker, on the subject of the Taft-Hartley labor law.

DISCUSSION ON CONTRACT LAW AT GEORGIA ASSOCIATION

A discussion on contract law featured the regular meeting of the Purchasing Agents Association of Georgia, held Thursday, November 18 in Brittain Dining Hall, Atlanta, Jamie Anthony, 1st vice-president, led the discussion.

RIER AND SUNDERLAND GUESTS AT JACKSON ASSN. MEETING

The regular monthly dinner meeting of the Purchasing Agents Association of Jackson, Miss., was held Tuesday, December 9 in the Creole Room of Le Fleurs. W. E. Rier, Purchasing Agent of Rotary Lift Co., Memphis, Tenn., and vice-president of District 7 of the National Association of Purchasing Agents, and Martin Sunderland, president of the Memphis Association, were guests and speakers at the meeting. T. S. Berry, professor of economics at Millsaps College, and author of books on economics, also spoke, with the subject "Monopoly In Competition".

MILWAUKEE ASSOCIATION HEARS TALK ON ELECTRIC MOTORS

The Milwaukee Association of Purchasing Agents met on Tuesday evening, December 9 at the Elks Club. Guest speaker was John C. Goodale, district manager of the Louis Allis Company, Wisconsin district sales office. He discussed the subject of electric motors, and their procurement and use from a purchasing agent's point of view.

"COMMUNITY PLANNING" TOPIC AT BRITISH COLUMBIA MEETING

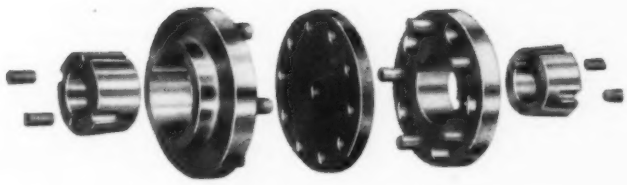
"Community Planning for Vancouver, What It Means and Why We Need It", was the subject of an address by Dr. Leonard C. Marsh, vice-chairman of the British Columbia Community Planning Association at the regular monthly meeting of the British Columbia Purchasing

(*Please turn to page* 222)

NOW! TAPER-LOCK* FLEXIBLE COUPLING!

It's new! It's different! A packaged Flexible Coupling . . . available from stock . . . and ready to install *without reboring*. It's another Dodge development for mechanical power transmission that saves time, cuts cost!

* TRADE NAME REGISTERED U.S. PAT. OFF.



- ✓ Built with the famous TAPER-LOCK bushing (patented).
- ✓ Available from stock in a wide range of standard bores. *No reboring!*
- ✓ Fastens to shaft with the firmness of a shrunk-on fit.
- ✓ Easy on—easy off. Can be disconnected without moving coupled machines.
- ✓ Compact design occupies minimum space on shaft. Safe! No projecting parts.
- ✓ "Pin Type" design with oak tanned sole leather center disc provides flexibility, resiliency and strength.
- ✓ Made of close grained semi-steel and machined all over to insure balance and true running.

DODGE MANUFACTURING CORPORATION
MISHAWAKA, INDIANA

DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER

(or write the factory) for complete bulletin on this newest Dodge contribution to better mechanical transmission of power. The Transmissioneer—your local Dodge distributor—is a factory trained specialist. Look for his name under "Power Transmission Equipment" in your classified phone book.

(*Continued from page 220*)

Agents Association on November 18. Dr. Marsh, who is a professor at the University of British Columbia, discussed the private and industrial "expansionitis" of the city and the need for planning to properly control it.

It was announced that the association now has 104 members and 28 associate members. The educational meeting on November 26 was addressed by Mr. Underwood, Dominion Oxygen Co., Ltd., on the subject of "Disposition of Scrap Metals".

MEMPHIS TO BE HOST TO 1949 DISTRICT 7 CONFERENCE

The Purchasing Agents Association of Memphis voted unanimously it is November meeting to play host to the sixth annual conference of District 7, N. A. P. A., in Memphis in 1949. President Martin Sunderland announced that committees will be appointed at an early date to formulate plans.

W. C. Teague, editorial writer for the Memphis Commercial Appeal addressed the meeting on "World Problems of Today". He emphasized how important it is for purchasing agents to be informed on legislation that will ultimately affect them. He advised his listeners to keep abreast of developments and to encourage helpful legislation and oppose harmful legislation.

SALESMEN GUESTS AT MONTREAL MEETING

The Purchasing Agents Association of Montreal played host to salesmen at its dinner meeting at the Mount Royal Hotel on Tuesday, December 16. W. Max Ford, executive assistant, Montreal Refrigerating & Storage Ltd., was the guest speaker, with the subject, "Why Worry?". The entertainment program was under the direction of Alan S. Potter.

PAST PRESIDENTS' NIGHT AT PITTSBURGH ASSOCIATION

The November 18 meeting of the Purchasing Agents Association of Pittsburgh at the William Penn Hotel, was featured as "Past Presidents' Night". Two sound pictures "New York Calling", and "Main Line, U.S.A." were also shown at the meeting through the courtesy of the Pittsburgh & Lake Erie Railroad.

BUSINESS PROFESSOR SPEAKS AT TRI-STATE ASSOCIATION

The regular monthly dinner meeting of the Tri-State Purchasing Agents Association held on November 18 at the Marietta (Ohio) Country Club, featured an address on inflation by Prof. Karl M. Scott, of the Marietta College business administration school, warned that the status of the nation's economic system will be determined by the handling of the inflation problem.

(*Please turn to page 224*)

COOPER CERTIFIED STAINLESS STEEL VALVES

Immediate Delivery from STOCK

COOPER can make immediate delivery from stock on Standard Type Stainless Steel Valves. These include: GLOBE · Y · NEEDLE · GATE · CHECK and QUICK-OPENING. The same prompt delivery can be given on Stainless Steel Pipe Fittings and Accessories.

COOPER'S 25 Years of Experience in Stainless Steel Casting has resulted in the development of vastly superior designs for Stainless Steel Valves. These designs incorporate many unique features that are exclusive with COOPER and insure long valve life and highly efficient performance in applications where Stainless Steel is indicated.

FIG. 100
150 lbs.
GATE VALVE
½ in. to 14 in.

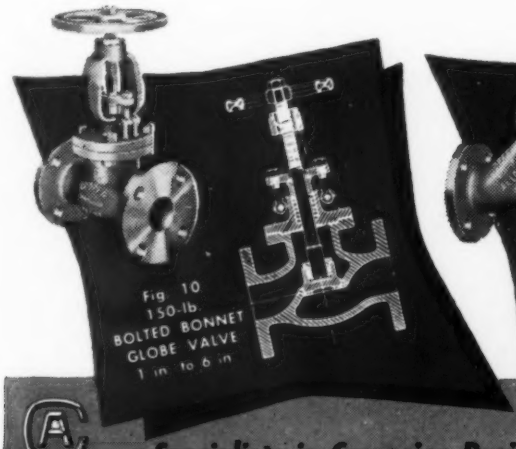


Fig. 10
150-lb.
BOLTED BONNET
GLOBE VALVE
1 in. to 6 in.

Fig. 225
150-lb.
Y-VALVE
1 in. to 6 in.

Fig. 270
150-lb.
LEVER
THROTTLE
GATE VALVE
½ in. to 3 in.

Specialists in Corrosion Resisting Stainless Steel

THE COOPER ALLOY FOUNDRY CO.

HILLSIDE, NEW JERSEY

Sold thru leading Stainless Steel Distributors

(*Continued from page 222*)

A discussion of "escalator" clauses in contracts, was led by Carl Riggs of Charleston, W. Va., director of purchases of the state of West Virginia.

The dinner, sponsored by John Waller, purchasing agent for the Vanguard Paint Co., Marietta, was attended by purchasing agents from Huntington, Charleston, Nitro, Pt. Pleasant and Parkersburg, W. Va., and from Ironton, Athens, and Marietta, O.

R. I. ASSOCIATION HEARS TALK ON FILES

"The History, Manufacture, Application and Care of Files", was the subject of a talk by Walter R. Buerckel at the November 24 meeting of the Rhode Island Purchasing Agents Association, held in the Narragansett Hotel, Providence. Mr. Buerckel, of the technical lecture service of the Nicholson File Company, used lantern slides to illustrate his lecture, which has received national recognition. Two new members were accepted at the meeting: George I. Aucoin, The Hadley Co., Inc., and Raymond H. Cheney, Jr., R. F. Simmons Co.

25TH ANNIVERSARY CELEBRATION FOR AKRON ASSOCIATION

The Purchasing Agents Association of Akron celebrated its 25th anniversary at the Women's City Club, on Tuesday, November 18. Arthur G. Hopcraft, past president of the Purchasing Agents Association of Cleveland, and of the National Association of Purchasing Agents, was the guest speaker.

HOUSTON P.A.'S LEAD HOUSTON COMMUNITY CHEST

The Purchasing Agents Division of the Houston, Tex. Community Chest campaign was the first to reach its quota in November, and received special recognition for its efforts. The P. A. division, still going strong at the close of the drive, turned in 104 per cent of its quota.

Members of the Purchasing Agents Association of Houston who worked on the campaign are: J. B. Thompson, chairman; M. W. Peters, vice-chairman; James A. Beelery, M. S. Biggs, Charles O. Brotherton, Harold Burrow, Earl R. Cobden, M. S. Compton, S. E. Dorsey, R. T. Eaton, J. F. Estill, F. T. Fendley, J. F. Florian, R. J. Gallagher, E. V. Hardaway, Sam H. Harper, Gene Walker, Wayne L. Legro, W. R. H. Mau, J. E. Nolen, Otto H. Owen, W. J. Peddie, H. J. Readle, H. L. Stuckey, Lee M. Webb, and A. J. Williams.

DAYTON ASSOCIATION VISITS GENERAL MOTORS PLANT

Members of the Purchasing Agents Association of Dayton visited the Morain Products Division of the General Motors Corp., Dayton, on November 13. An early dinner was served by the company, fol-

(*Please turn to page 226*)

ARE YOU SURE YOU'VE BOUGHT NYLON-BRISTLED PAINTBRUSHES?

If you think you have, read this carefully

SOME PAINTERS *think* they're using paintbrushes bristled with Du Pont nylon, when actually they're not. With the reputation that nylon has achieved as an extremely versatile material, it's natural that many might mistake other bristles for nylon.

So—when you buy paintbrushes—our suggestion to you is: *make certain they are made with genuine nylon bristles.* There's only one way to be sure—*look for the name NYLON bristles stamped clearly on the brush handle.*

For there's no substitute for NYLON! Of course, there are other types of paintbrush bristles, which are adequate for their purposes. But no other bristles equal the combination of painting qualities available in nylon. A nylon-bristled brush *breaks in quickly and improves with wear!* In properly made brushes the paint pick-up of nylon bristles is excellent . . . and a nylon-bristled brush spreads paint evenly. Nylon bristles wear up to 5 times longer than any others, thus can save you up to 80% of the cost of the brushes you buy. These facts have been proved by actual wear tests performed by independent brush manufacturers.

Buy just one *genuine* nylon-bristled brush. *Watch* it improve with use—*watch* it wear and wear. You'll agree: "*In value, in service—the best paintbrushes have Du Pont nylon bristles.*" Nylon-bristled brushes are made by most paintbrush manufacturers. E. I. du Pont de Nemours & Co. (Inc.), Plastics Department, Room 841, Arlington, N.J.

For thrilling entertainment, tune in Du Pont "Cavalcade of America"—Mondays, 8 P. M. EST, NBC

KNOW THESE 5 FACTS ABOUT NYLON-BRISTLED PAINTBRUSHES

1. You can break them in with ease.
2. You'll find they paint quickly and easily.
3. You'll find they give top-notch results.
4. You'll find they last far longer than any ordinary brushes.
5. You'll be surprised at the money they save.

DU PONT
REG. U. S. PAT. OFF.

DU PONT NYLON BRISTLES

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

(*Continued from page 224*)

lowing which the visitors were conducted through the plant in small groups. The trip covered the manufacture of powdered metal bushings and parts to the manufacture and assembly of brakes. The various operations on the production line included steel stampings, spot welding, assembly and machine screw work.

OREGON ASSOCIATION VISITS BONNEVILLE DAM

The Purchasing Agents Association of Oregon visited Bonneville Dam on November 17, and returned for dinner at the Heathman Hotel, Portland. At the November 3 meeting, P. M. Othus of the Army engineers spoke on "Engineers' Progress in the Willamette Valley".

TULSA ASSN. TOURS PLANT

Members of the Purchasing Agents Association of Tulsa were the guests of the Warner Lewis Co., Tulsa, at a plant tour and buffet dinner on Thursday, November 18. F. P. Nopper was chairman of the program committee, and was assisted by D. H. Bowman and V. M. Lewis.

KANSAS CITY ASSOCIATION SPONSORS PURCHASING LECTURES

With the cooperation of the Purchasing Agents Association of Kansas City, the University of Kansas extension center is presenting its second course of twelve lectures in Industrial Purchasing. Class discussion is under the direction of a coordinator, with a qualified industrialist or teacher at each session.

The class meets on Tuesday nights at the Hotel Continental. The instructor coordinator is Fulton Monsees, assistant secretary and purchasing agent of Standard Steel Works.

MEXICAN CONSUL SPEAKER AT DALLAS MEETING

"Buying and Selling in Mexico" was the subject of a talk by Efrain G. Dominguez, Mexican consul, guest speaker at the November 13 meeting of the Purchasing Agents Association of Dallas. R. Linn Crockett, vice-president of the association, presided at the meeting, which was held in the Melrose Hotel.

LITHOGRAPHY TALK AND FILM TWIN CITY ASSOCIATION

The December 10 meeting of the Twin City Association of Purchasing Agents was held at the St. Paul Athletic Club, St. Paul, Minn., and featured a talk entitled "How to Make a Good Impression" by James Willis of the Harris Seybold Co. of Chicago. Mr. Willis dealt with color printing through lithography and was supported by a sound film in color. The meeting was a combined bus-

(*Please turn to page 228*)

When you specify test loads do you . . . hope for them? . . . grope for them? . . . or make sure of them THIS WAY?

EACH LOT OF EVERY ITEM AS IT CLEARS HUNTER FINAL INSPECTION

is

RANDOM SAMPLED

for

SPECIFIED LOAD TEST

with

RESULTS RECORDED IN THE FORM OF A FREQUENCY DISTRIBUTION

on

A QUALITY REPORT (QR)

which

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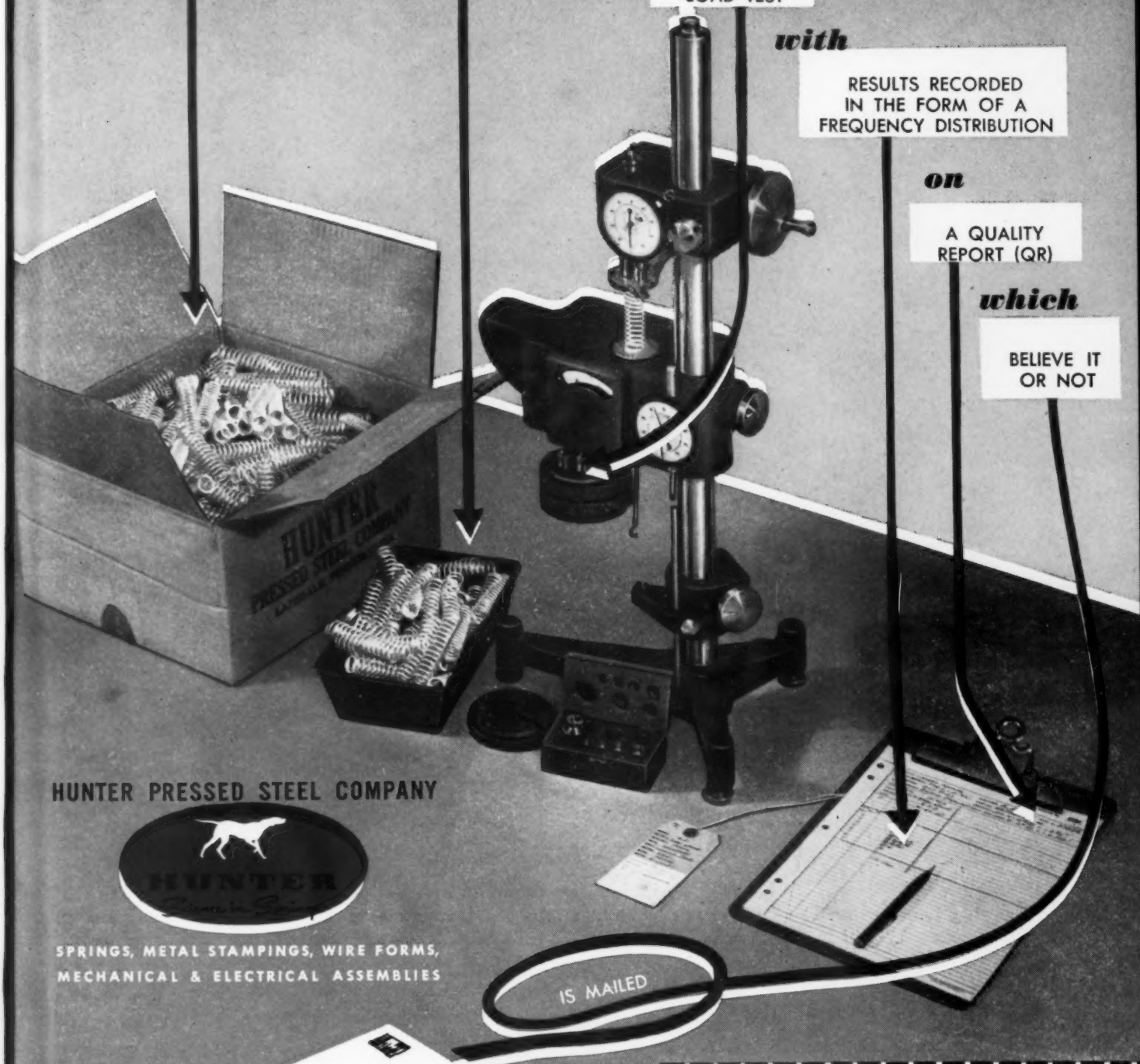

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Gentlemen: I'm interested. Please send me without obligation____ copies of "The Statistical Method for Control of Quality", including an explanation of the Hunter Quality Report Service.

*Name*_____

*Title*_____

*Company Name*_____

*Street Address*_____

*City*_____ *Zone*____ *State*_____

(*Continued from page 226*)

iness and annual Christmas party affair, and following the business session, the members joined in jollification and exchange of gifts.

* * *

CHRISTMAS PARTIES HELD BY MANY ASSOCIATIONS

The Christmas tradition dominated the scene among the local associations in December. Following are some of the parties held during the month in addition to those mentioned elsewhere in this section:

The Purchasing Agents Association of Buffalo combined a business meeting and party on the 10th at the Hotel Statler. Refreshments were on the house, members had been asked to bring an "exchange" present for distribution by Santa Claus, and fifteen 12-pound turkeys were distributed as prizes. The only business brought before the meeting was the voting on three new members.

The British Columbia Purchasing Agents Association held its annual Christmas party at the Hotel Vancouver, Vancouver, B. C., on the 12th, at which members, friends and their ladies enjoyed an evening of entertainment and dancing. Members of the association were guests of the B. C. Products Bureau of the Vancouver Board of Trade, at Christmas celebration held by that group on December 19.

The New England Purchasing Agents Association held its annual Christmas party at the Hotel Bradford, Boston, on December 15. Features of the evening were a drawing for prizes, followed by entertainment. Tickets for the affair were $3.50 for members and $7.00 for guests.

The Purchasing Agents Association of Toledo held its annual Christmas party at the Toledo Yacht Club December 13. Tickets were $5 per person.

The Purchasing Agents Association of Memphis held its annual Christmas dinner-dance on December 13th, in lieu of the December business meeting. Various firms contributed attendance prizes. Following dinner, members and their ladies enjoyed a full program of entertainment.

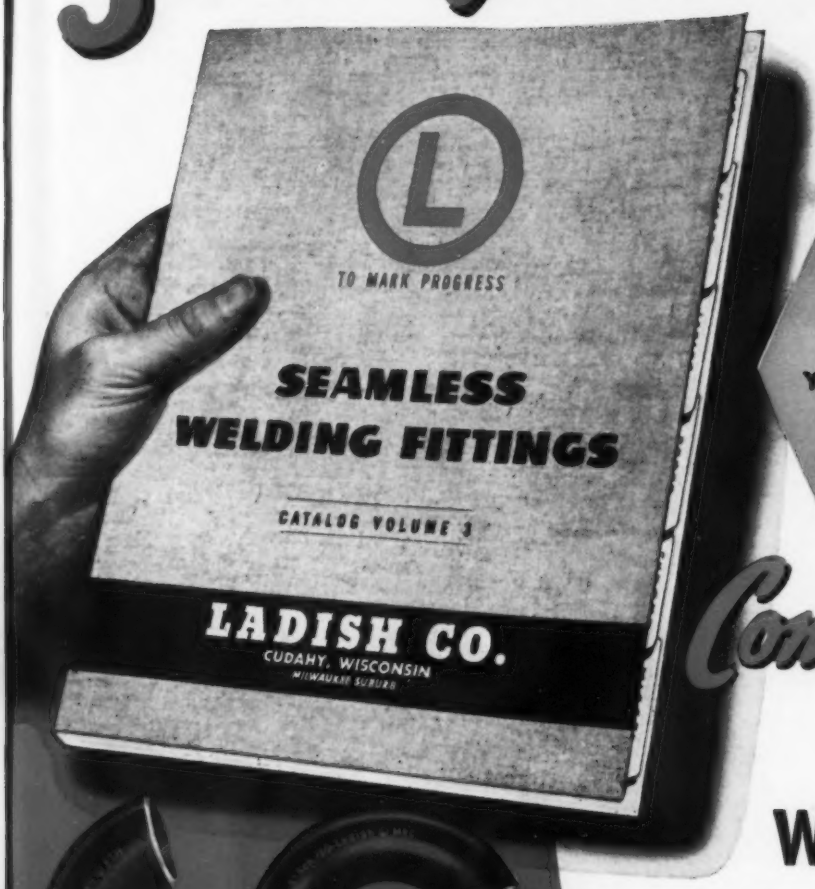
The St. Louis Association held its annual Christmas party in the Gold Room of the Hotel Jefferson, St. Louis, on the 13th. The affair featured entertainment, gifts for the ladies and attendance prizes. Members' ladies were guests of the association as in previous years. Tickets were $7.50 each.

The New Orleans Association held its annual Christmas party at the Jung Hotel on December 16th. The association's New Year's Eve supper dance was held at the same hotel.

The Metropolitan Purchasers Assistants Club, New York, held its holiday house party at Midston House New York, on December 9th. Dinner and an entertainment program, with a grab bag finale for which members contributed inexpensive wrapped gifts featured the evening.

(*Please turn to page 231*)

Your Introduction to



- Maximum Piping Efficiency
- Reduced Maintenance Costs
- Increased Service Life

THIS *NEW* 112-PAGE CATALOG CAN BE YOUR GUIDE TO PIPING ECONOMIES WHEN YOU USE IT FOR SPECIFYING ...

LADISH *Controlled Quality...*

SEAMLESS WELDING FITTINGS

It will pay you well to let this new catalog introduce you to a proven method for insuring reliability in the Seamless Welding Fittings you buy.

This method is to specify Ladish Controlled Quality. Then you are always sure to get fittings of unsurpassed metallurgical integrity . . . in proof of which we stand ready to supply certified laboratory analyses of the steel in any Ladish fitting. Only Ladish Controlled Quality gives you this scientific proof of reliability.

Let this new catalog also acquaint you with Ladish's *complete* Seamless Welding Fittings line, available in sizes ranging from ½ inch through 30 inches. Here in this 112-page catalog are complete dimensions, weights and specifications to assist in quick and easy selection of fittings. Here too, is useful technical data to help design piping systems for maximum operating efficiency.

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Dept. PU-I
Cudahy, Wisconsin

Please send me your new catalog on Ladish Controlled Quality Seamless Welding Fittings.

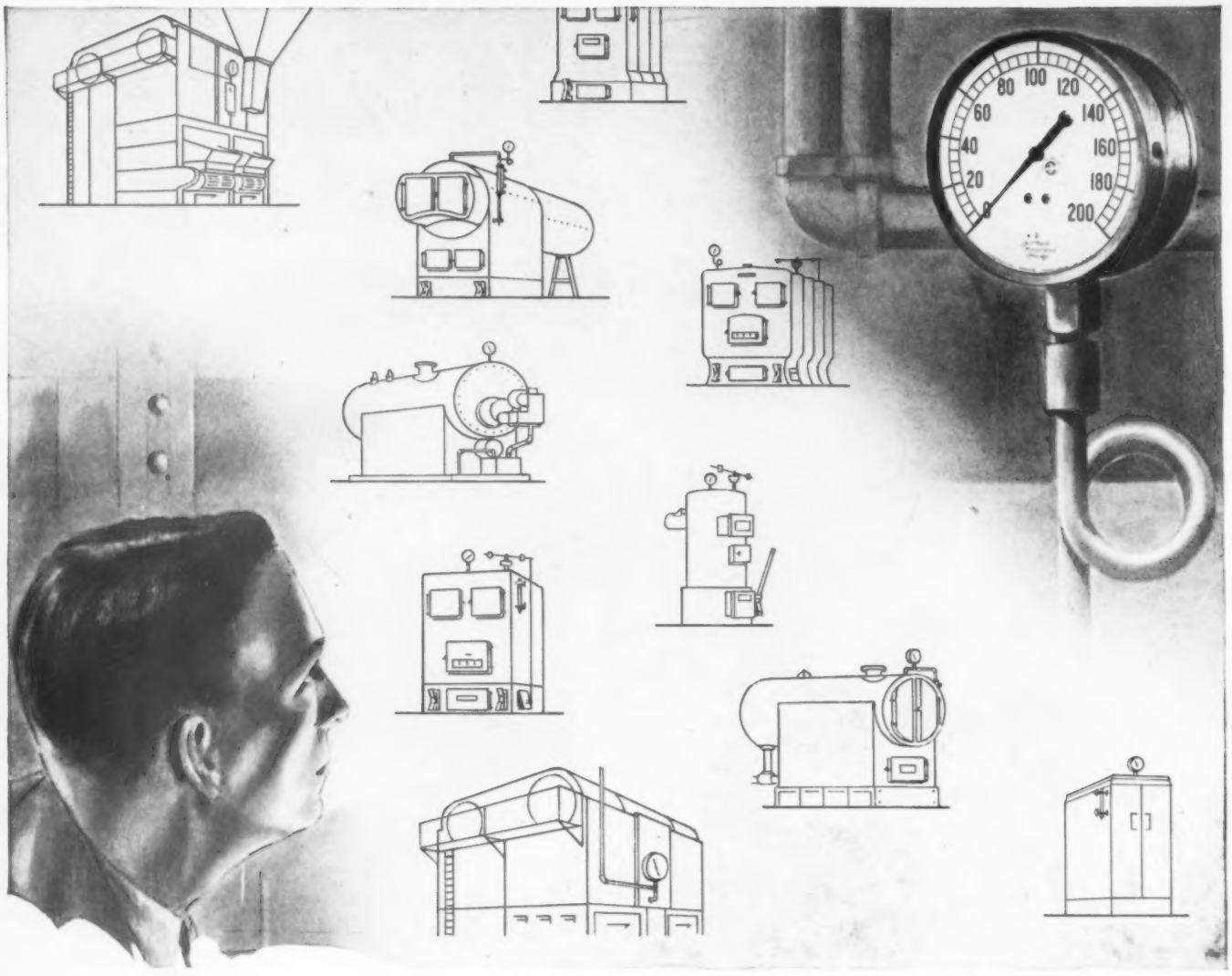
Name.....

Title.....

Company.....

Address.....

City.....Zone.....State.....



. . . *Way out in front in the boiler field*

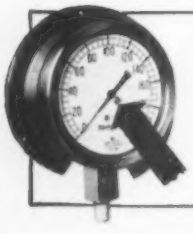
● Yes, a large majority of boiler manufacturers use Marsh pressure gauges. Marsh is out in front in every branch of this big industry—low pressure, high pressure, cast iron, fire tube, self-contained, water tube—from the smallest up to the largest.

In current trade directories, more than 65% of the boiler manufacturers listed equip their product with Marsh Gauges; and while actual boiler production figures are not available, this particular 65% of the boiler manufacturers unquestionably do, by the most conservative estimate, over 80% of the world's boiler business!

Here is a remarkable tribute to the lasting accuracy of Marsh instruments by men who use gauges in large quantities—men who know pressure gauges forward and backward. Yet it is only one example of the preference shown in many fields by manufacturers of products in which accurate pressure indication is vital.

Keep this in mind when you buy pressure gauges. Use the instruments that are preferred by the most discriminative users of pressure gauges . . . *Marsh.*

Jas. P. Marsh products include: A full line and range of gauges in pressure, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. A broad line of steam and hot water heating specialties. Ask for literature.



MARSH ALONE HAS THE "RECALIBRATOR" —quickest and best way to correct a gauge that has been knocked out of adjustment by improper handling.

JAS. P. MARSH CORPORATION
Dept. G, Skokie, Illinois

MARSH GAUGES

"THE STANDARD OF ACCURACY"

(*Continued from page* 228)

Ladies Night Christmas Party of the Purchasing Agents Association of Connecticut took place at the Seven Gables Town House, New Haven, on December 6th. Each lady received a corsage and gift. The cocktail hour was followed by dinner and several acts of vaudeville, then dancing.

The Purchasing Agents Association of Cleveland held its annual Christmas party and dance at the Cleveland Hotel on December 13th. The association's annual Kiddies' Party was held a week later, the children being regaled with entertainment, prizes and refreshments.

The Purchasing Agents Association of Rochester held its annual Christmas party at the Rochester Club on December 17th.

The Purchasing Agents Association of New York held its annual Christmas Party, which was featured by large attendance, at the Hotel Pennsylvania, New York City, on December 16th. The evening was given over to a good dinner and a spectacular show, singing, and the distribution of prizes and favors. Tickets were $7.50 per cover. Donors of prizes were restricted to association membership.

The Purchasing Agents Association of Cincinnati, held its Christmas party, (for members and their ladies only) at the Hotel Gibson ball room December 13. Announcement was also made of a Valentine dance to be held at the Summit Hill Country Club, Dudley Pike, Kentucky, on Saturday, February 14.

The Purchasing Agents Association of Pittsburgh held its annual Christmas party for members and their ladies on December 16th at the Pittsburgh Athletic Association. Dancing followed the cocktail hour and dinner, and there was also cards for card players. Tickets were $7.50 per plate.

The annual Christmas party of the Purchasing Agents of Toronto was held on December 12, at the Royal York Hotel. The party featured dinner and dancing and a revue, "The P. A. Panics of 1947, Laughing With The Girls". Tickets were $10.00 per couple.

The Purchasing Agents Association of Alabama held its Christmas Party at the Mountain Brook Country Club, Birmingham, on December 17. Dinner, dancing and entertainment were featured, and the ladies received favors. Tickets were $7.00 per couple.

The Purchasing Agents Association of Akron held its annual Christmas Dinner and Dance at the Woman's City Club on December 16. A cocktail party was held before the dinner. Tickets were $7.00 per couple.

* * *

GEORGE HENRY ADDRESSES RUBBER STAMP GROUP

"Today's Buying" was subject of address by George Henry, associate editor, PURCHASING Magazine, at recent meeting of the Rubber Stamp Manufacturer Association of New York, in New York City.

I.E.S. PUBLISHES NEW LIGHTING HANDBOOK

Every phase of the lighting art and science is covered in the new I.E.S. Lighting Handbook, publication of which was recently announced by the Illuminating Engineering Society, 51 Madison Avenue, New York 10, N. Y. The accumulated knowledge of the past 41 years of lighting progress, evaluated and interpreted with respect to today's needs has been placed within reach of all the book's readers, in simple terms and highly condensed style, according to R. W. McKinley, editor.

Among the features of the book are: many photographs, larger type, detailed alphabetical index, detailed data on many types of commercially available lighting equipment, and simplified design techniques and other working tools. Price to non-members of the society is $7.50.

* * *

DIRECTORY OF RUBBER INDUSTRY

The Rubber Red Book, Directory of the Rubber Industry, 6th Issue, 835 pages, price $5.00, is announced by The Rubber Age, 250 West 57th Street, New York, N. Y.

The directory lists the rubber manufacturers in the United States and Canada, and their officers, contains a classified list of rubber products and their manufacturers, and also lists manufacturers by geographic location.

Reclaimed rubber manufacturers, brand names and trade designations are listed, with application and color classifications. Suppliers and addresses of rubber machinery and equipment, accessories and fittings, rubber chemicals and compounding materials, fabrics and textiles, and natural rubber and related materials are also listed, as rubber scrap dealers. Other lists show consultants, branch offices and sales agents of leading suppliers, and "Who's Who" in the rubber industry, the latter being a comprehensive list of individuals in the industry as well as the personnel of leading suppliers and others.

* * *

MANUAL ON CUTTING FLUIDS

Completely revised edition of the booklet "Cutting Fluids for Better Machining", a 72-page catalog of metal-working information, has been published by the D. A. Stuart Oil Co., 2727 South Troy St., Chicago 23, Ill. It contains a wealth of data on the use of Stuart oils for cutting, grinding, drawing, quenching and tempering, and all other phases of metalworking and industrial lubrication.

In addition, useful sections on Metal Cutting Mechanisms, The Selection of Cutting Fluids, Rules for Prolonging Tool Life, handy tables of Standard Steel Specifications, Independent Research Committee Data and Marking System Chart for grinding wheels are included.

(*Please turn to page* 234)

Check SANDVIK'S four point quality when you specify SPRING STEEL

- ✓ HIGH FATIGUE LIFE
- ✓ FINE SURFACE FINISH
- ✓ UNIFORM SIZE
- ✓ CLOSE TOLERANCES

When you have a spring steel application that calls for these properties in more-than-usual degrees, check with SANDVIK. You'll most likely find that there's a SANDVIK steel that will give you exactly the kind of spring performance that you want.

SANDVIK steels are made from the purest ore obtainable by carefully controlled processes. Charcoal of low phosphorous and sulphur content is used exclusively in the smelting. This inherent purity is the basic reason why SANDVIK steels have been meeting the high physical demands of a wide variety of special uses for over a quarter of a century.

You can get SANDVIK cold-rolled, high carbon or alloyed, spring steel

- annealed, unannealed or hardened and tempered
- with bright finish or blue or yellow polished
- with round edges or square edges
- in a wide range of thicknesses from .001" up.

Phone or write for further information and current stock lists. SS-22

SOME SANDVIK SPECIALTY STRIP STEELS

Band Saw Steels: Wood, Butcher and Metal · Clock and Watch Spring Steels Compressor Valve Steel · Conveyor Belting · Doctor Blade Steel · Feeler Gauge Steel · Knife Steels: Art, Surgical, Textile, etc. · Magnetic Sound Recording Tape Piston Ring Segment and Expander Steels Razor Blade Steel · Reed Steel · Shim Steel · Sinker Steel · Spring Steels · Textile Steels · Vibrator Reed Steel.

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1736 Columbus Rd., Cleveland 14, Ohio CHerry 2303
WAREHOUSES: New York and Cleveland

BOOKLET ON HOW TO SELECT AN AIR COMPRESSOR

A complete treatise covering the selection of both automotive and industrial air compressors has been compiled by the Pneumatic Automotive Equipment Association, 1108 Clark Building, Pittsburgh 22, Pa.

The booklet simplifies and organizes the data needed for the determination of size and the scientific selection of an air compressor to meet any requirement, with clearly worked out charts illustrated by examples covering many types of installations. Tables also give the flow of free air through orifices of various dimensions. Installation recommendations are included, giving data for electric wire and pipe sizes.

"DOALL CONTOUR SAWS" IN NEW EDITION

"DoAll Contour Saws" published by the DoAll Company, 254 No. Laurel Ave., Des Plaines, Ill., has been revised and enlarged to 416 pages to include a new section on instruction programs for use in a shop or school training course.

The new book is 6" x 9", pocket size, cloth bound for durability. It describes through photographs, charts and drawings the techniques for contour sawing and filing, also high speed sawing and the friction cutting methods with band sawing equipment. The second part of the book gives a complete instruction course on contour machining. Copies available upon request.

GUIDE BOOK DIRECTORY METAL FINISHING INDUSTRIES

"1947 Guidebook and Directory for the Metal Finishing Industries" has just been announced by Finishing Publications, Inc., 11 West 42nd Street, New York. Its 436 pages of practical information on electroplating and allied subjects, are divided into ten sections, namely: Abrasive Methods, Cleaning and Pickling, Electroplating Solutions, Surface Treatments, Control and Testing, Chemical Tables, Organic Finishes, Organic Finishing Methods and Equipment, A-Z Equipment and Supply Directory, and Trade Names. Price $1.50 per copy.

(*Please turn to page* 236)

OVERFIRE JETS TO PREVENT STATIONARY PLANT SMOKE

"Application of Overfire Jets to Prevent Smoke from Stationary Plants" is the title of Technical Report No. VII, by Richard B. Engdahl and William S. Major, Fuel Research Laboratory, Batelle Memorial Institute, Columbus, Ohio, available from Bituminous Coal Research, Inc., 912 Oliver Building, Pittsburgh 22, Pa. The price is 25¢ per copy.

NEW HANDBOOK AIDS IN SPECIFYING GRINDING WHEELS

A. P. DeSanno & Son, Inc., has issued a handbook designed to simplify the specifiying of the company's Radiac grinding wheels for use on particular jobs. Each manufacturing process (vitrified, silicate, resinoid, rubber and shellac) has a separate double page. In the white central column, from top to bottom, are listed the different specifications of the grinding wheel, according to type of abrasive, grain sizes, grades, structure and bond. In a corresponding column in light blue, to the right, is translated the meaning of each symbol. The company states that this method makes it easy for the user to alter the specification and to obtain the wheel adapted to his particular needs.

The four-color is lacquered to withstand constant handling in the tool room. The book will be mailed on request to the company, at Phoenixville, Pa.

"ETHOCEL DATA HANDBOOK" RELEASED BY DOW CHEMICAL

Two booklets on Ethocel, one entitled "Ethocel Data Handbook" and the other "Recording Lacquers of Ethocel", have recently been published.

The "Ethocel Data Handbook" contains information on the basic properties of Ethocel and suggestions for its use in lacquers, emulsions and hot melts. "Recording Lacquers of Ethocel" is the first of a series of monthly bulletins by the Coatings Technical Service on topics of interest for specialty coating applications. These new booklets are obtainable in Dow offices throughout the country or by writing to Coatings Section, Plastics Division, The Dow Chemical Company, Midland, Michigan.

TESTING AND RATING HAND-FIRED HOT-WATER-SUPPLY BOILERS

The National Bureau of Standards, Washington, D. C., has announced that a Commercial Standard for Testing and Rating Hand-Fired Hot-Water-Supply Boilers, identified as CS145-47 will be effective as a voluntary standard of the trade from December 1, 1948. Printed copies of the standard will be mailed on request to the bureau, Washington 25, D. C.

(*Please turn to page* 238)

Here's a wealth of INFORMATION

for users of these modern metals:

ALUMINUM

MAGNESIUM

STAINLESS STEEL

Packed With Facts—Maximum specific data, with minimum "commercials," are given in this illustrated brochure. Such information has proved of substantial value to designers and buyers of sheet metal parts executed in aluminum, magnesium or stainless steel

If your product uses sheet aluminum, magnesium or stainless steel, you will find much valuable information in this booklet. For it gives *detailed, factual data* on how you can take advantage of the comprehensive facilities of one of the most widely experienced "light metal" fabricators in the East.

Three-Way Service

These facilities can work for you under three general plans: (1) on a straight contract-manufacturing basis, or (2) with full responsibility for engineering, tooling and production of given parts, or (3) as a complete manufacturing department—including production planning, inventory control, finishing, final inspection, packaging, and scheduled shipments of finished product to distributors or dealers.

That Extra Something

The physical facilities for efficient fabrication of sheet metal . . . plus complete design, tooling, assembly, and quality control staffs . . . plus years of experience gained in working with the light metals—all add up to something much more than "just another supplier." To acquaint you further with the scope of these services, we should like to send you the brochure illustrated. There's no obligation, of course.

COLGATE *Manufacturing Corporation*

522 SOUTH BAYVIEW AVE., AMITYVILLE, LONG ISLAND, NEW YORK

FABRICATORS OF LIGHT METALS: ALUMINUM, MAGNESIUM, STAINLESS STEEL

AMA PAMPHLETS AND BOOKLETS ON SALES MANAGEMENT, MARKETING AND PACKAGING

The American Management Association, 330 West 42nd St., New York, N. Y., has released catalog of publications reporting advances in sales management, marketing and packaging during the past ten years.

In the pamphlets and booklets listed are expositions and analyses of operating techniques, policy determination, procedures, company case histories and the technical experience of leading organizations which have pioneered progress in market research, sales, compensation, materials handling and container and package testing, sales training and other aspects of distribution.

* * *

MANUAL ON STATIONARY PLANT SMOKE PREVENTION

To provide commercial and industrial plants with an improved guide on how to design, construct, and install overfire jets for smoke prevention, Bituminous Coal Research, Inc., has published a revised and enlarged issue of Technical Report VII, "Application of Overfire Jets to Prevent Smoke From Stationary Plants".

The publication written by Richard B. Engdahl, Assistant Supervisor, Battelle Memorial Institute, and William S. Major, Development Engineer, Bituminous Coal Research, Inc., covers the cause of smoke and just how the jet functions to keep smoke formation to a minimum. All example studies are now coupled with drawings showing furnace views before and after overfire jet application. Drawings have also been added to show construction details of popular sizes of steam-air jets built from standard pipe and fittings.

A feature of this new publication is the inclusion of "WORK SHEETS" for use in designing either steam or blower actuated jets for any type of boiler furnace. These work sheets carry systematic reference to the simplified graphs, tables and formulae that are used in determining air tube size, tube spacing, number of tubes, nozzle size, etc.

Copies of this booklet, Technical Report VII, are available on request from the Technical Information Service, Bituminous Coal Research, Inc., 912 Oliver Building, Pittsburgh 22, Pennsylvania.

* * *

COAL BUYERS MANUAL

Coal Buyers Manual, 1947-48 edition, is announced by Keystone Coal Buyers Manual, 330 West 42nd Street, New York, N. Y. The manual contains detailed directory sections covering all phases of the coal industry, viz: (1) coal sales organizations; (2) coal trade names; (3) coal cleaning plants; (4) coal seams with descriptions of burning characteristics, range or average analysis, etc.; and, (5) coal mines and operating companies. The price is $15.00.

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These Threads are too deep

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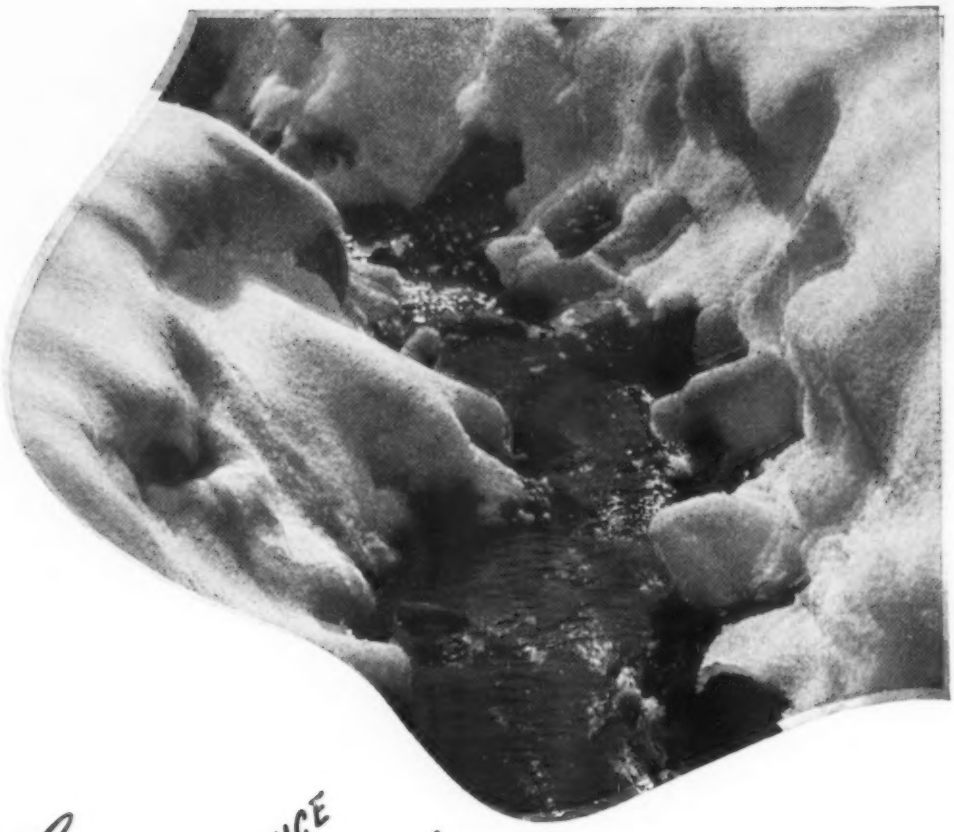

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only ripples of OFFICE *sound*

In the new Remington Rand electric adding machine, cushioned power gives welcome relief from harsh office clatter. You'll turn out more work with new ease on this quieter, faster model—with its longer, streamlined motor bars and famous 10-key touch-control keyboard. All feature keys are electrified—you add, subtract, multiply directly—as fast as your fingers will move. For full details, call your local Remington Rand representative or Dept. PU-1, 315 Fourth Avenue, New York 10.

Cushioned Power: Built-in steel cushions reduce noise and vibration—lessen strain on moving parts—insure smoother operation and longer life.

Streamlined Action: Longer, feather-touch motor bars and compact 10-key keyboard eliminate finger groping, speed every operation. Completely electrified.

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the new **Remington Rand** electric adding machine

PRODUCTION EXECUTIVE

Office Equipment and Supplies

Monthly FORMS FORUM

Purchasing Department Daily Report, and Local Emergency Purchase Report Form Are New Among Forms that Have Been Reproduced in the Forum

HERE is a group of forms that was supplied for use in the Forms Forum by J. R. Carmichael, supervisor of purchases and store, Georgia Power Company, Atlanta, Georgia. The purchasing department buys all supplies, merchandise, fuel and other materials required by the company, which operates approximately 85 to 90 retail stores throughout the state of Georgia. The company activities also include a gas service in its Columbus, Ga. division, and transportation systems in Atlanta, Macon, Augusta and Rome. Purchasing for this wide diversity of operations is under the direction of the main office and five divisional operations which maintain purchasing and stores personnel.

The forms reproduced are as follows: Purchase Order, Change Notification Sheet (for authorizing changes in purchase orders), Purchase Requisition, Purchasing Department Daily Report, Report of Material Received, and Local Emergency Purchase Report.

The first of these, the purchase order, is a ten-sheet fanfold form, with the following distribution: vendor, purchasing department copy, accounting department record copy, auditing department copy, copy for party signing requisition, two copies for the receiving department one of which is for forwarding to the auditing department upon final delivery of material, and three blank sheets for general office use.

In addition to providing space for "Delivery Schedule", requisition number, shipping instructions, price and terms, the vendor's copy of the purchase order instructs the vendor to "Send invoice

(*Please turn to page* 242)

2-1-3-2 2M—5-1-46

PURCHASING DEPARTMENT
DAILY REPORT

Date_____

	All Orders Except Steam Coal and Emergency	Steam Coal	Local Emerg'cy Atlanta	Local Emerg'cy Outside Atlanta	Totals
Purchase Orders Written This Year to Date					
Purchase Orders Written This Date					
Total Purchase Orders Written this Year to Date Inc.					
Dollar Value Purchases This Year to Date					
Dollar Value Purchases This Date					
Total Dollar Value Purchases This Year to Date Inc.					

SUMMARY OF PURCHASE ORDERS WRITTEN THIS DATE

P. O. No.	Account No.	Vendor	Item	Amount

8½" x 11"

Purchasing Department Daily Report provides summary of the purchase orders written on the reporting date, as well as recapitulation of orders written "to date", and dollar value of orders for the year to date, date of report, and total.

SUPPLY REQUISITION

2-1—1,200 Forms—10-11-46

Date _____ Req. No. _____

Date Required _____ Ship to GEORGIA POWER COMPANY

Explanatory Remarks _____ C/o: _____

Location: _____, Ga.

Ship Via: _____ Prepaid — Collect

QUANTITY	ARTICLES AND DESCRIPTION Give full data involving dimensions, catalog numbers, standards book reference, makes, grades, etc.	ACCOUNT NO. AND LOT NO.	PRICE DATA			

DO NOT W

RECORD OF ORDERS PLACED	NUMBER					
A		Signed:	Quoted by			
B		Approved:	Buyer			
C		Approved:	F.O.B.			
D		Approved:	Delivery			
E		Approved:	Terms			

J. S. CAMPBELL
SUPERVISOR OF PURCHASES AND STORES
A. E. ROBINSON
ASST. PURCHASING AGENT

PURCHASE ORDER

GEORGIA POWER COMPANY

P. O. BOX 1719

ATLANTA 1, GA.

OUR ORDER NO. F

SHIP TO

8¼" x 8¼"

SHIP VIA

REQ. NO.

DELIVERY SCHEDULE

QUANTITY	ARTICLES AND DESCRIPTION	OUR ACCOUNT AND LOT NUMBERS	PRICE

BY ACCEPTING AND FILLING THIS ORDER OR ANY PART THEREOF, THE SELLER AGREES TO AND SHALL BE BOUND BY THE TERMS AND CONDITIONS PRINTED ON THE BACK HEREOF.

PRICE F. O. B.

SEND INVOICE, IN DUPLICATE ATTACHED TO ORIGINAL SHIPPING PAPERS, TO GEORGIA POWER CO. C/O ACCOUNTING DEPT. P. O. BOX 1719, ATLANTA 1, GA. ALL PACKAGES AND PAPERS MUST BE MARKED WITH PURCHASE ORDER NUMBER

GEORGIA POWER COMPANY

SUPV'R OF PUR. AND STORES
ASS'T PURCHASING AGENT

TERMS:

"Terms and Conditions" are reproduced in accompanying text

2-2655 A—2000—5-25-47

GEORGIA POWER COMPANY

LOCAL EMERGENCY PURCHASE REPORT

District _____ Date _____ L. P. No. _____

Vendors Name, Address	Article or Description	Total No. Invoices	Total Amount
	Actual Size		
	8½" x 11"		

DISTRIBUTION:

Original and two copies with invoices attached to Division Supervisor of Supplies.

DIVISION SUPERVISOR OF SUPPLIES:

Original with Invoices to Accounting Department.
One copy to Purchasing and Stores Department
One copy file.

Signed _____ District Manager

Approved _____ Division Superintendent

Approved _____ Division Supervisor of Supplies

(*Continued from page* 241)

in duplicate attached to original shipping papers to Georgia Power Company care of accounting department", and carries the provision that "By accepting and filling this order or any part thereof, the seller agrees to and shall be bound by the terms and conditions printed on the back hereof". The terms and conditions are as follows:

"1. Prepay all charges on goods purchased F.O.B. destination.

"2. Invoices should state terms and cash discounts allowed.

"3. If shipment cannot be made by date specified, notify us at once. We reserve the right to cancel order if shipment is not made as promised.

"4. All material furnished must conform with our specifications when indicated and if not in accordance therewith, same will be held at your risk, awaiting disposition. Shippers must pay all transportation charges both ways on all rejected material.

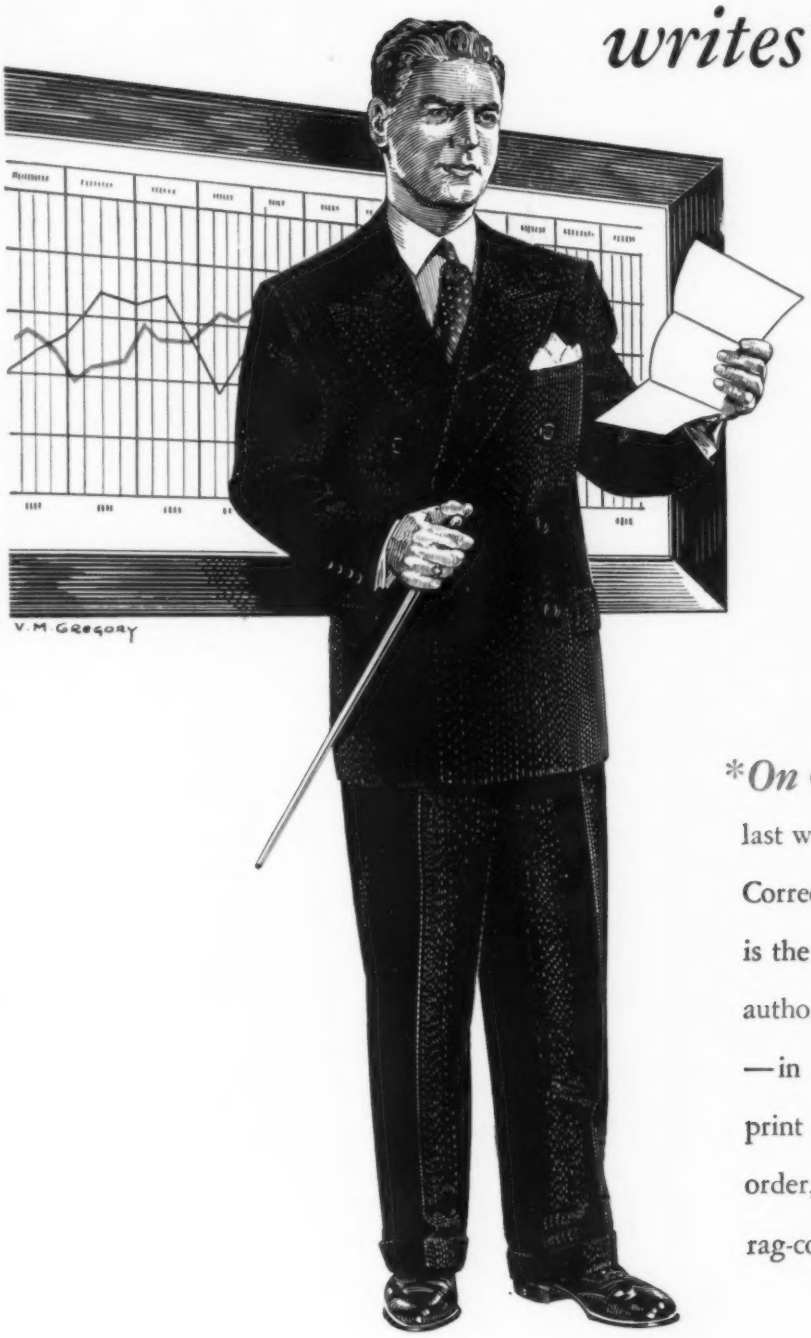
"5. Place our order number on all bills, packing lists and packages.

"6. "It is a condition of this order, and by filling it you will be deemed to have agreed, that in case any article sold and delivered to this company hereunder shall be protected by any patent or copyright, you will indemnify and save harmless this company from and against all suits, claims, judgments and costs instituted or recovered against it by any person or persons whomsoever on account of the use or sale of such article by this company in violation of rights under such patent or copyright." "

The "Receiving Ticket" copy of the purchase order, carries the following printed instruction: "Notice—Upon re-

(*Please turn to page* 244)

"...now, the Home Office writes* me that..."



***On Correct Bond.** There it is—the last word on operations. It is aptly written on Correct Bond because this fine rag-content bond is the last word in fine letterheads. There's authority and prestige in its smart, crackling feel—in the clean brilliance that its finish lends to print and typing. For your next letterhead order, specify your printer's choice of bonds—rag-content, air dried Correct Bond.

Correct Bond

WHEREVER THE WRITTEN WORD MUST TRULY REPRESENT YOU

HOWARD PAPER MILLS, Inc. • AETNA PAPER COMPANY DIVISION • DAYTON, OHIO

Form 2-7 B—200M—11-6-40

GEORGIA POWER COMPANY

REPORT OF MATERIAL RECEIVED

PARTIAL SHIPMENT

MAKE FULL REPORT OF ANY SHORTAGE OR DAMAGE ON FORM No. 2-1320

Date .....

Order No. .....

Requisition No. .....

Store's Reg. No. .....

Order Placed On .....

Received at .....

Express Way Bill No. .....

Received From .....

Freight Bill No. .....

Car Initial and Number .....

Warehouse Receipt No. .....

NO. OF PACKAGES	WEIGHT IN POUNDS	DESCRIPTION	QUANTITY	LOT NO.	ACCOUNT
		11" wide x 8½" deep			

The material listed above has been received in good order.

Receiving Clerk or Department Head.

(*Continued from page* 242)

ceipt of material, enter quantity and date received and forward this sheet to Auditing Department. Make full report of any shortage or damage. If partial delivery is received, use split delivery receiving report Form 2-7B. Always report final delivery on this No. 6 order copy form." This form also carries space for showing "Warehouse Receipt No.", date, and "Stores Register No." The form 2-7B indicated for reporting receipt of partial shipments is among the forms reproduced.

New among the forms reproduced in the Forms Forum are the Purchasing Department "Daily Report", and the "Local Emergency Purchase Report". The former shows the number of orders written on the date of the report, and the total issued to date, and corresponding dollar value information. The lower part of the form gives a summary of the orders written on the report date, the information including P.O. number, account number, vendor, item and amount.

The Local Emergency Purchase Report form is self-explanatory. It will be noted that the maker sends original and two copies with invoices attached, to the Division Supervisor of Supplies, who in turn forwards the original with invoices to the accounting department, and a copy to the purchasing and stores department at Atlanta.

The Supply Requisition, it will be noted provides a rather complete record of material ordered. The Price Data columns on the right, reserved for purchasing and stores division use, show the name of the buyer handling the requisition, source of quotation, delivery information and terms. The requisition also includes space for record of orders placed for the materials requisitioned.

The Change Notification Sheet is used to "authorize" changes in purchase orders. It specifically states, also, that "No changes in, or cancellations of purchase orders will be recognized unless authorized by this change notification sheet, issued only by the Purchasing Department."

J. B. CARMICHAEL, Supervisor of Purchases and Stores
W. H. MURRAY, Asst. Supervisor of Purchases and Stores
A. E. ROBINSON
J. L. BOTTERS
H. P. WILLIAMSON
Asst. Purchasing Agents

GEORGIA POWER COMPANY

P. O. BOX 1719

ATLANTA 1, GA.

8½" wide x 8¼"

THIS NOTICE APPLIES TO OUR PURCHASE ORDER No. .....

CHANGE NOTIFICATION SHEET

Date .....

WE AUTHORIZE THE FOLLOWING CHANGES IN THE ABOVE NUMBERED PURCHASE ORDER

THIS SUPERSEDES ANY PREVIOUS INSTRUCTIONS ISSUED ON THIS PURCHASE ORDER

Dept. Req. No.

SIGNED:

GEORGIA POWER COMPANY

By .....

Supervisor of Purchases and Stores
Assistant Purchasing Agent

NO CHANGES IN, OR CANCELLATIONS OF PURCHASE ORDERS WILL BE RECOGNIZED UNLESS AUTHORIZED BY THIS CHANGE NOTIFICATION SHEET, ISSUED ONLY BY THE PURCHASING DEPARTMENT.

Change notice may be used for changes or cancellations

HOW TO MANAGE BY EXCEPTION SIGNAL CONTROL SYSTEM

Illustrated presentation, six pages, "Like Radar, Kardex Signals Exceptional Facts", bulletin No. KD-361, issued by Systems & Methods Research Department, Remington Rand, Inc., 315 Fourth Avenue, New York, explains the ease with which the tested, time and error saving principle of management-by-exception can be applied to control of stocks, sales, personnel, and collections, with gains in work simplification and record cost reduction. The four-color presentation outlines the significance of signal control as a tool of management for revealing facts that must be known if losses are to be avoided and opportunities capitalized.

(*Please turn to page* 246)

. . . and it loads quicker, works slicker . . . *because of its Open Channel!*

Chromium body protects the channel against grit and dust to insure clog-free performance. Super-hardened steel, precision engineered to *last a lifetime!*

Load a Swingline stapler with 100% round wire Swingline staples, and you have the speediest, most efficient stapling team for office, factory, school or home.

SWINGLINE STAPLES are 100% round wire, pre-tested to insure rapid-fire penetration and clog-free action in any standard stapler. Look for the red, white and blue box at your stationer's.

Swingline

STAPLES — STAPLERS

SPEED PRODUCTS COMPANY INC. LONG ISLAND CITY 1, N. Y.

CASTELL DRAWING PENCIL AGAIN IN PRODUCTION

The Castell drawing pencil, manufactured by the A. W. Farber-Castell Pencil Co., Newark, N. J., is again available, according to a recent announcement. Arrangements for milling and processing Castell graphite in Bavaria, for export to the United States, were completed early this year with the approval of the Military Government authorities. The 18 degrees of lead are encased in Southern cedar by American craftsmen, the company states.

CELEBRATES 50TH ANNIVERSARY AS PRESIDENT

Arthur H. Swett, president of the American Tag Co., 6151 South State Street, Chicago, recently celebrated his fiftieth anniversary as president of the company, and the organization's "Twenty-Year Club" honored him at a dinner on

Arthur H. Swett

December 2nd, at which he was presented with a jeweled medallion, a gift from the employees. Back in 1897, young Arthur Swett answered a "Business Opportunity" ad in a Chicago newspaper, and with money saved from previous job experiences such as newspaper delivery boy, gas street lamp lighter, dairy operator, and as a salesman, purchased a small plant equipped with four machines for printing shipping tags. Today his company rates among the highest in its industry.

FENLASON SALES MANAGER OF FEDERAL BUSINESS PRODUCTS

John D. Fenlason has been named sales manager for metropolitan New York and New Jersey for Federal Business Products, Inc. of New York city.

Mr. Fenlason received special commendation from the Army Air Forces and the U. S. Quartermaster Corps for his development of work simplification and flow process analysis of control records and paper work procedures. He recently resigned as an associate of Amos Parrish & Co., and previously had served as special government representative for the Standard Register Co., and as coordinator for International Business Machines activities in the New York and San Francisco fairs.

(*Please turn to page* 248)

GAIR COMPLETES NEW PLANT FOR CORRUGATED BOX DIVISION

Completion of a million dollar plant for the Boston corrugated box division at 170 Fawcett Street, Cambridge 38, Mass., has been announced by George E. Dyke, president of Robert Gair Co., Inc. The main manufacturing room is 180 x 500 feet, the largest single manufacturing floor in Gair's plants, and the total manufacturing area is approximately 150,000 square feet.

The building of the Cambridge plant was part of a company program which included the recent installation of a million dollar Fourdrinier machine at its Thames River division for the production of corrugating material, and a 17 million dollar forestry and mill project in Georgia, to be completed early in 1948, for the production of Kraft pulp and liner for all Gair corrugated box plants.

RETIRE AFTER 143 YEARS IN INDUSTRY

With a combined service record of 143 years in the envelope industry, three employees of the Sheppard Envelope Company of Worcester, Mass., were honored on their retirement, at the company's annual pension dinner held in the Hotel Sheraton recently and were presented wallets containing one dollar for each year of their age, by Miss N. Myra Glazier, president of the company. The honored guests were Wilson S. Doe and William Eddy, of the Traffic Department and George W. Smith an adjuster at Sheppard.

Wilson S. Doe, George W. Smith, and William Eddy

Mr. Doe, who began work in the envelope industry over 56 years ago, has been with Sheppard for 19 years; Mr. Eddy has worked for Sheppard 24 of the 30 years he has been connected with the industry; and Mr. Smith has been at Sheppard for 22 of the 57 years he has been associated with the industry.

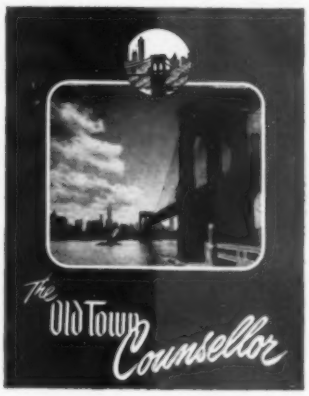
Thirty-seven members of the Sheppard "Old Timers" group, as well as the officers and directors of the company, attended the dinner which was followed with motion pictures portraying the manufacture of envelopes.

NEW YORK REPRESENTATIVE FOR NATIONAL DUPLICATING CO.

The Crystal Copy Corporation, 15 West 24th Street, New York, N. Y., has been appointed exclusive representative for greater New York city and New Jersey by the National Duplicating Co. of Denver, Colo., for Supreme stencils and other duplicating supplies.

OLD TOWN DISTRIBUTES NEW GUIDE BOOK

"The Old Town Counsellor", is the title of new guide book of 40 pages, available from the Old Town Ribbon & Carbon Co., Inc., 750 Pacific Street, Brooklyn, N. Y. The book presents a



detailed view of the field of duplicating supplies from autographic register rolls to woven edge ribbons. Renewing various duplicating processes, it tells how to obtain best results from each and points out the features to look for in purchasing supplies. It concisely reviews available types of carbon papers, duplicator fluids and papers, inked and carbon ribbons, master units and related subjects.

EASTERN DISTRIBUTOR FOR HUMMEL

Daniel M. Hicks, Inc., 565 Fifth Avenue, New York 17, N. Y. has been appointed eastern distributor for the A. C. Hummel Co., Cincinnati, O., manufacturers of moisteners for gummed paper surfaces.

SILICONE RESINS USED AS SIZING FOR PAPER

Silicone resins have been found to be excellent for sizing paper, according to J. W. Underwood, administrative assistant, Plastics Laboratory, General Electric Company. Less than 0.1% resin is necessary to give good results. It is added to the beater stock which must have a pH value below 7. Hard water decreases the sizing effect but this can be overcome by the addition of a small amount of silicone oil emulsion.

This small amount of size does not affect the strength properties, Mr. Underwood said. Using larger amounts of silicone resin for size decreases the strength properties except tear strength which is increased. The small amounts of silicone resin necessary for good sizing make the silicones especially suited for papers where the larger amounts of ordinary size might cause difficulties. This suggests the use of silicone resin as a sizing for cigarette and condenser paper.

(*Please turn to page* 250)

Minimum writing . . .
Minimum handling . . .
Minimum looking . . .
with UARCO Business Forms

how you can profit from . . .

For Instance . . .

There's no carbon stuffing with Uarco E-Z-Out Forms—they come with carbon already interleaved. Copies can be held together for later additions, then detached in one easy operation.

Use Uarco Business Forms, and you won't pay a dime for needless paperwork!

A SINGLE WRITING produces all necessary copies . . .

A SIMPLE OPERATION detaches the right copy for each individual concerned . . .

A QUICK LOOK gives him all the facts he needs.

These savings apply no matter which Uarco form you use.

They apply no matter *how* it's used—for hand-written, typewritten, or business machine records.

Your Uarco Representative will gladly recommend the best forms for your particular set-up. Call him in—there's no obligation. UARCO INCORPORATED, Chicago, Ill.; Cleveland, Ohio; Oakland, Calif.; Deep River, Conn. *Offices in All Principal Cities.*

SINGLE SET FORMS

CONTINUOUS-STRIP FORMS
FOR TYPEWRITTEN AND BUSINESS MACHINE RECORDS

UARCO
INCORPORATED
BUSINESS FORMS

AUTOGRAPHIC REGISTERS
AND REGISTER FORMS

PLASTIC TYPEWRITER AND BUSINESS MACHINE COVERS

"Belle-Vue" typewriter and business machine covers are made entirely of black Vinylite plastics. They are said to be water-proof, dust-proof, crack-proof, non-flammable and resistant to acids and mildew. The covers may be folded to palm size and placed in a drawer corner when not in use. They are unconditionally guaranteed not to crack or peel, regardless of the number of times they are folded. They are made by Budlew Products Co., 20 East Jackson Blvd., Chicago 4, Ill.

CIRCULAR DESK DOES AWAY WITH DRAWERS

"Circladesk" is a streamlined desk that replaces drawers with compartments. The top and body encircle the work area giving the user ready access to all daily accessories. Round design of the desk is said to take up less floor space, making possible five desks where four previously were used.

The desk is supplied in secretari l models with typewriter well for secretary, receptionist and typist, and in executive models for inner office and general use. Desk tops are in a selection of mahogany, maple and oak. Rounded sides are available in natural wood finish, mahogany, maple, oak or enameled in colors to harmonize with office or room decorations. Manufactured by C. G. Morgan Co., 4616 North Clark Street, Chicago 40, Ill.

DIEBOLD APPOINTMENTS

Reinhold DeWitt has been made special assistant to President George Bockius of Diebold, Inc., Canton, Ohio. His present duties include studying problems in procurement, factory production, planning, layout and tool design.

Albert W. Garner who joined Diebold's New York branch in the Systems Division in 1946, later becoming manager of the New York Flofilm division, has been appointed Assistant Sales Manager of the Systems Division by W. K. Wilson, Diebold Systems sales manager.

(*Please turn to page* 252)

Before choosing any printing paper

Look at Levelcoat*

Look at Levelcoat... for brightness

Sparkling as Arctic starlight is the clear brilliance of Levelcoat* printing paper. For the brightness of Levelcoat is more than surface deep; it begins with a skillful blend of "brightness" fibers in the very pulp itself. And with a lustrous coating of specially selected clays, Levelcoat emerges in fullest beauty.

Look at Levelcoat... for smoothness

Here's a printing surface that's as smooth as upland snow! That's because it's so uniformly coated by Kimberly-Clark's precision-controlled method . . . using clays that might pass as face powder, they're so soft, so clean, so flour-fine. Let the soft glow of Levelcoat papers spotlight your printed message!

Look at Levelcoat... for printability

Advertisers like Levelcoat for its printing qualities which make color sing or black type snap with contrast. Printers like its character—and the uniformity which gives trouble-free performance ream after ream, run after run. Try this beautiful paper yourself—and give your printing the Levelcoat lift.

IT PAYS TO LOOK AT LEVELCOAT

Levelcoat* PRINTING PAPERS

National Printing Week 1948
January 11 to 17

A PRODUCT OF Kimberly Clark RESEARCH

KIMBERLY-CLARK CORPORATION, NEENAH, WISCONSIN

*TRADEMARK

ELECTRICALLY OPERATED SAFETY RECORD DESK

Illustration shows electrically operated safety record desk, known as the Rekordesk, developed by Diebold, Inc., Canton, Ohio, for the easy use and safe keeping of vital records. The Rekordesk, Model 22-12, which carries the label of the Underwriters Laboratories for two-hour fire protection, provides space for 15,000 records which are within easy reach of the operator.

Push button control for open and closing, automatically brings the records to counter height. Standard equipment includes 10 ledger card trays with 22⅜ filing inches, without follower back, and three card drawers with ten compartments. Card size for the 10 standard trays is 5″ x 8″. Trays are available for other than standard width cards, though when cards from 8″ to 13″ high are used, card drawers are omitted.

The Rekordesk assures unified control and protection from fire of 15,000 records within easy reach of the operator.

The motivating force of the model shown is a single phase motor operating on 120-volt 60-cy., 8-amp. current, and the door mechanism consists of twin worm gears on twin vertical propeller shafts. Tray raising and lowering coincides with door operation. Hand crank is provided for manual operation in event of power failure.

Another model, the Junior Rekordesk Safe, No. 2375, complies with the requirements of the Safe Manufacturers National Association for safes having two hours fire resistance. Standard equipment includes three trays for cards 5″ wide by 8″ high, and one three-compartment card index drawer for 5″ wide by 3″ high cards. Sorting shelf 8″ wide by 19¼″ long automatically drops to working position when the trays are raised. Printed matter describing these units in detail is available.

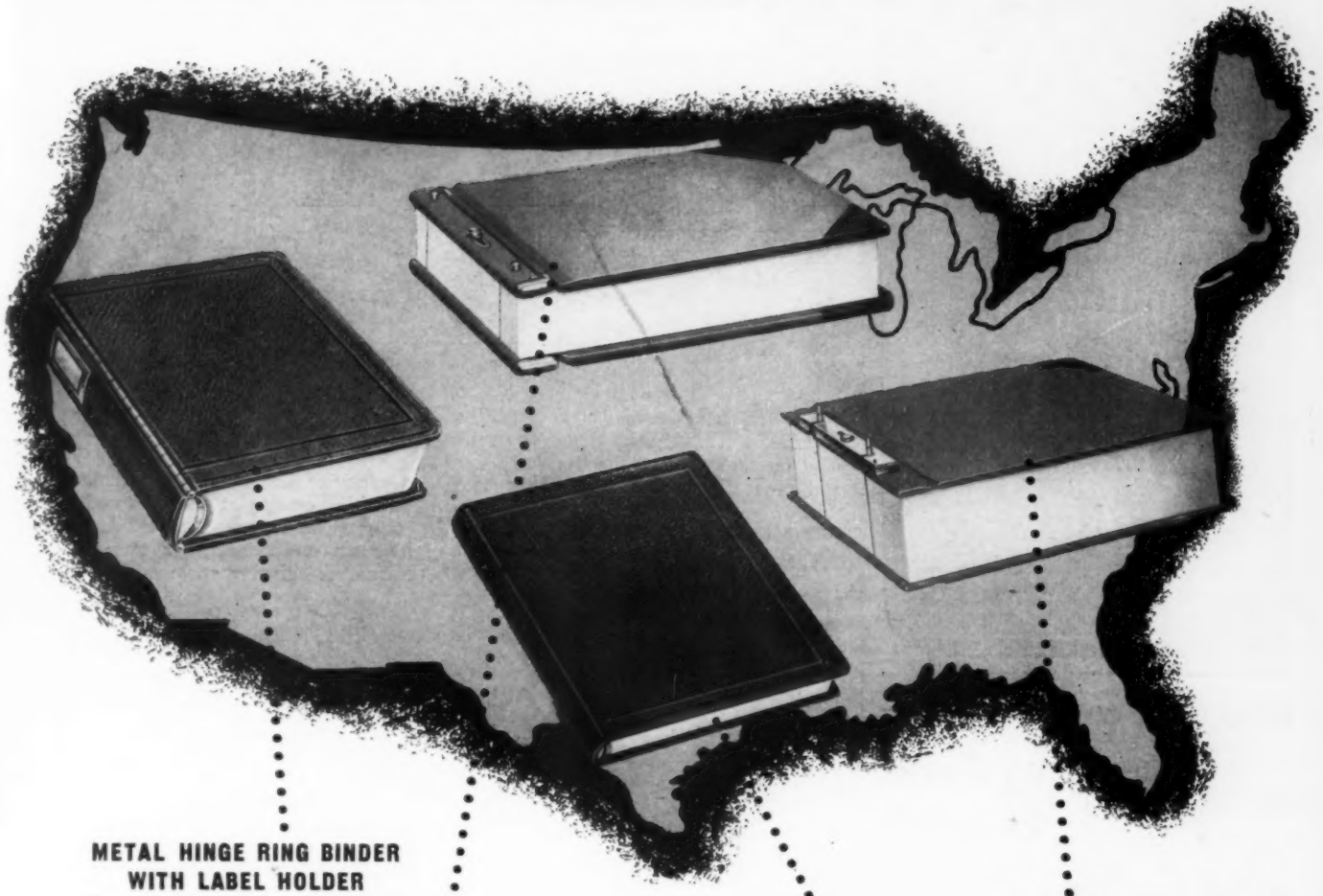
PERSONNEL ADDITIONS AT GUMMED PRODUCTS COMPANY

Additions to the home office personnel of the Gummed Products Company, Troy, O., were recently announced by Roth F. Herrlinger, president.

Robert E. Hoefflin, formerly treasurer of Waco Aircraft Co., is now in charge of the enlarged gummed paper tape department. He became manager of the

(*Please turn to page* 254)

North, South, East or West, Federbush Binders are the Best!



METAL HINGE RING BINDER WITH LABEL HOLDER

Style RJM. **Binding: Full Black Levant Grain Imitation Leather, blind tooled; stiff covers; metal parts highly nickel plated with triggers.**

FABRIC HINGE RING BINDER

Style RJ. **Binding: Black Imitation Leather, blind tooled; stiff covers; metal parts highly nickel plated with triggers.**

SECTIONAL POST BINDER

Toplock — Style FR. **Binding: Finest Grade Blue Slate Canvas, Red Leather Corners; medium weight binder board with rounded corners; end caps of highly nickel plated steel.**

SECTIONAL POST BINDER

Slotlock — Style SB. **Binding: Blue Slate Canvas, Black Imitation Leather Corners; medium weight binder board with rounded corners; canvas hinge; slotted locks.**

The FEDERBUSH Company, Inc.

91 SEVENTH AVENUE • NEW YORK 11, N. Y.

When It Comes to Binders — Come to Binder Headquarters . . . or Write for Our Complete Catalog.

(*Continued from page 252*)

company's plain tape department in August. The flat gummed paper department will be in charge of Willis R. Haase, who was Columbus district sales manager for the company.

Robert G. Etter has been made an assistant on the staff of Joseph W. Kenny, manager of the Trojan box tape department. Assisting T. H. Mittendorf, vice-president in charge of sales will be William T. Blake, formerly a member of the sales promotion staff of The National Cash Register Co.

The company's home office and field activities will be under the direct supervision of Mr. Mittendorf and F. F. Williams, sales manager.

SIMPLIFIED DESK MODEL BOOKKEEPING MACHINE

Illustrated compact desk model bookkeeping machine is so simple in operation that a trained operator is unnecessary, according to the manufacturer, R. C. Allen Business Machines, Inc., 678 Front Avenue, N.W., Grand Rapids 4, Mich. The machine will post statement, ledger and proof journals simultaneously. It is said to be adaptable for commercial, payroll or bank work.

Improvements featured are front feed form insertion, true credit balances printed in red, tabulator bars easily changed, and visible dials. Also included are automatic dating, automatic carriage control non-add and subtract, and automatic carriage tabulation.

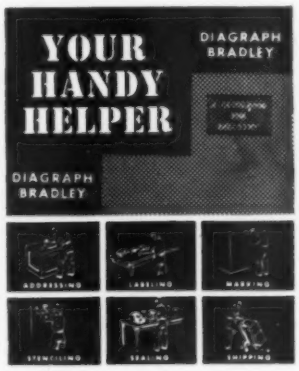
SELF-CONTAINED DRINKING WATER COOLER

Temprite Products Corp., 47 Piquette Avenue, Detroit 2, Mich., offers a self-contained, 10-gallon capacity drinking water cooler, featuring an all stainless steel top and drain assembly and an automatic water-flow regulator.

An anti-splash guard and a bubbler giving maximum sanitary protection are incorporated into the cooler. According to the maker, it is impossible for the users lips to come into direct contact with the water nozzle, and waste water will fall only into the basin, not on the nozzle. Water flow is automatically regulated, and is said to be unaffected by outside water pressure variations. Cooler and storage tank are of 18-8 stainless steel, and are sealed in an insulated cabinet, protected against moisture.

GUIDEBOOK FOR SHIPPING ROOMS ISSUED

Latest edition of the "Handy Helper", a guidebook for shipping rooms, has been published by the Diagraph-Bradley Industries, Inc. Included in the book are correct export packaging procedure, rules and regulations on marking for both export and domestic markets and other needs to help the shipping department to operate more efficiently.



The book also contains descriptions of a complete line of stencil machines and stenciling equipment manufactured by the company, as well as their Stikkfast label gummers and a large assortment of miscellaneous shipping room equipment.

A BRAND NEW CHAIR IDEA

An adjustable radius chair, for office or factory use, with either posture or executive type seating, is announced by the Wheeldex Manufacturing Co., 53 Park Row, New York, N. Y. The chair is regularly adjustable on a radius up to 22 inches but may be made longer on special order. It is ideal for use in any circular or semi-circular work area in shop or office.

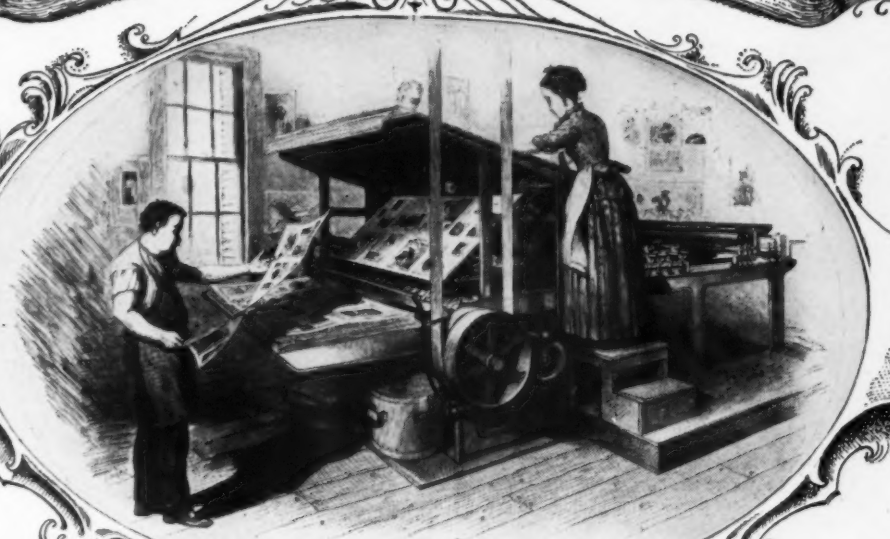
Among a few of the suggested uses are for the operator of a battery of auto-

The chair is readily adjustable on a radius up to 22 inches

matic typewriters or similar office machines; for collating and assembly work; or in any location where it is desirable for a person to be able to cover a large area without "hiking" a chair across the the floor. The chair turns lightly at the

(*Please turn to page 257*)

1898 FIFTIETH ANNIVERSARY 1948



The Bettmann Archive

TEMPUS FUGIT

OR THE FIFTY YEARS THAT SAW A NEW WORLD BORN

A half-century is not so long in time. But in terms of the changes they have brought *these* 50 years just past seem ages long. Think of the printing industry, for example (as typified by the shop above, which may well have been one of our first customers). Handwritten copy, set by flickering gaslight with a red hot, pot-bellied stove providing the air conditioning.

But what a job they did . . . editor, ad man, printer, yes, and paper-maker, too. They changed our thinking and our way of life. Unceasingly, they preached the gospel of Democracy and prepared us to accept and later to demand its material benefits, providing the markets that made them possible in greater profusion than in any other spot upon the globe.

They chased the grocery store cat from the cracker barrel and prune box and brought immaculately packaged foods and fresh uncontaminated milk to the American home. Through printed education, they helped to make our public health the envy of the world.

It's been a phenomenal fifty years for America.

And, as we pause at the threshold of our second half-century, we look back at the past and humbly tip our hat. INTERNATIONAL PAPER COMPANY, 220 East 42nd Street, New York 17, N. Y.

INTERNATIONAL PAPERS

For Printing and Converting

FIFTY YEARS OF PAPER MAKING

(*Continued from page* 254)

proverbial "feather touch" through its precision mounting on three large sets of ball bearings. It is normally furnished with black crinkle finish base and chromed steel radius bar, but other colors may be had on order.

DRAWS 12-FOOT CIRCLES

Illustration shows the new Amerline Beam Compass and Measuring Rule, which is characterized as a convenient time saving aid to architects, draftsmen, pattern makers, sheet metal workers, etc. The compass locks in position to draw circles up to 12 feet in diameter. It is equipped with both lead point and stylus. The 72-inch nickel plated Lufkin steel rule, 3½ oz. weight, and compact design make it an ideal multi-purpose instrument that can be conveniently carried about.

The pivot is reversible, with hard metal point for drafting tables and soft surfaces; blunt point for metal and hard surfaces. Further details are available from Amerline, Inc., 1753 N. Honore St., Chicago 22, Ill.

ELECTRIC CARD STENCIL TYPEWRITER ANNOUNCED BY IBM

International Business Machines Corporation, New York, N. Y., announces a new electric card stencil typewriter as the latest addition to its line of electric typewriters. The machine has a special carriage for holding and feeding card stencils and is also provided with a frame for holding a backing strip or roll to protect the platen from defacement, as well as a separate record strip roll holder which may be utilized to keep a carbon record of the stencils cut. A carbon-faced backing roll may be used to facilitate the reading of the completed stencils.

The twelve-inch machine accommodates stencils up to 4½ inches in width. Stencils two inches (five lines) or less in depth can be typed on the upper margin; stencils more than two inches in depth, such as the four-inch card, can be typed only on the lower two-inch position of the stencil. Adjustment to handle stencils of any width under 4½ inches can be made by the substitution of a special-length platen.

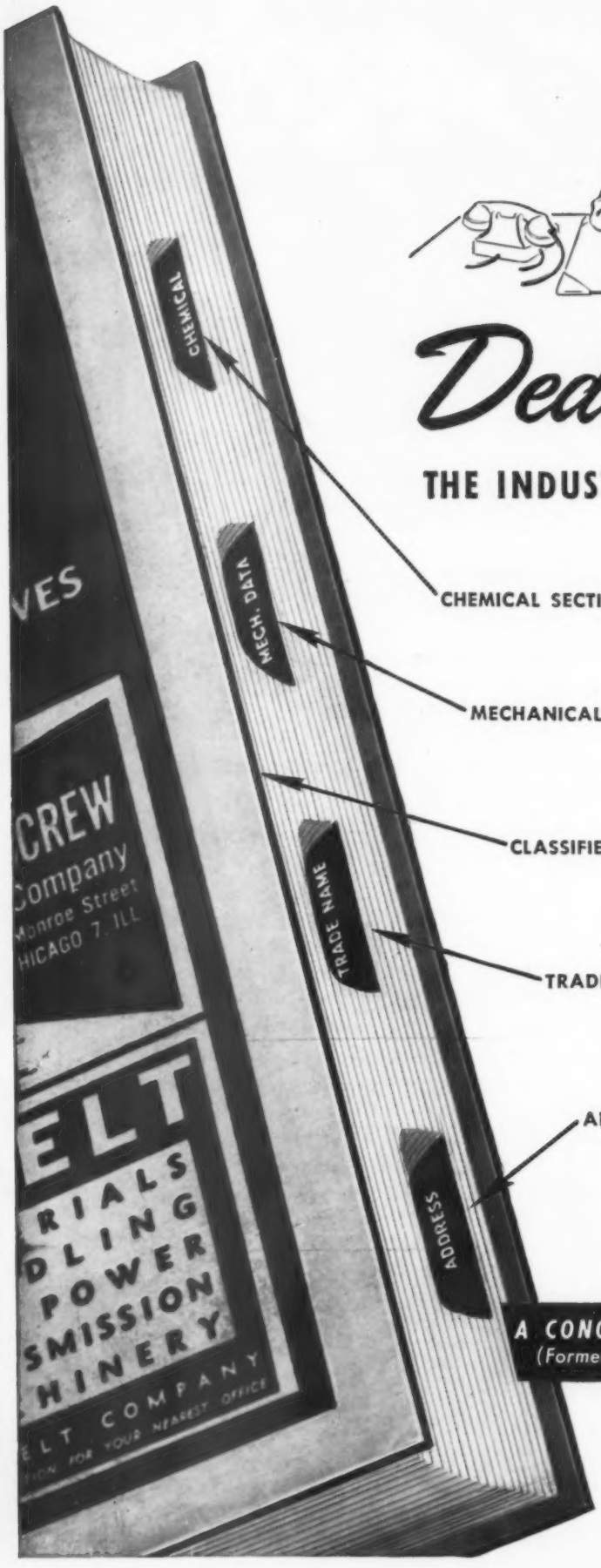
All the advantages of IBM electric typing have been incorporated in the Electric Card Stencil Typewriter. A perfectly-cut stencil, regardless of the operator's touch, is assured by the IBM impression control. The all-electric keyboard enables a typist to prepare stencils

(*Please turn to page* 259)

PLANT PURCHASING DIRECTORY

Dedicated TO MAKING

THE INDUSTRIAL BUYER'S JOB EASIER...



- Comprehensive Industrial Buying Information
- Easy to Read
- Large 4-column Format
- Lies Flat on Desk
- A Single Volume
- Light in Weight
- Easy to Handle
- Easy to Use.

Because PLANT PURCHASING DIRECTORY makes your work easier, keep it right on your desk for ready-reference.

A CONOVER-MAST PUBLICATION
(Formerly Plant-Production Directory)

PLANT PURCHASING DIRECTORY
333 No. Michigan Avenue, Chicago 1, Illinois

(*Continued from page 257*)

with a minimum of effort. The ease of inserting and removing stencils the automatic carriage return, and the automatic changing from 3 to 1 line spacing and from ribbon to stencil position make the preparation of uniform card stencils on this machine a fast, efficient operation.

VINYLITE WHITE BLACKBOARDS

Black is white in these new drawing and writing boards manufactured by Chatfield-Clarke Co., New York, N. Y.

The boards are of wood-fibre with a coating of Vinyl plastic that is sprayed on and baked. This coating provides a bright, smooth surface that is resistant to sunlight, water, and cleaners. Special crayons are used in conjunction with these lightweight boards which eliminate chalk dust. In addition to the white surface, Vinylite plastic base coating also provides other colored surfaces in light green, light yellow, buff and light gray. The markings are easily and cleanly removed.

SALES DEPARTMENT CHANGES ANNOUNCED BY IBM

International Business Machines Corporation, announced the promotion of Gordon P. Lovell to the position of assistant to the IBM general sales manager. He was previously a district sales manager.

Mr. Lovell joined IBM in 1932 after his graduation from Colgate University and served at Newark, N. J., until 1939, when he was made electric accounting machine manager at Syracuse. He served in various managerial positions also in Chicago, Dayton and New York until 1946, when he was made a divisional sales manager. He became a district sales manager in the same year.

He is succeeded as sales manager of District No. 1 by McLain B. Smith, previously electric accounting machine manager in Philadelphia. Mr. Smith joined IBM in 1933 after his graduation from Fordham University and served at Rochester, Hartford, Washington and Chicago until 1942, when he entered the U. S. Army. He was discharged as a major in 1946 and returned to IBM as assistant electric accounting machine manager in New York. He was made electric accounting machine manager in Philadelphia early in 1947.

PERSONALITIES *in the* NEWS

Carleton Ellis, Jr. has been named Director of Purchases of the Plaskon Division of the Libbey-Owens-Ford Glass Company, Toledo, O., it was announced

Carleton Ellis, Jr.

by W. W. Knight, Jr., general manager. Mr. Ellis was formerly district sales manager of the Chicago and Washington offices and more recently manager of the plant's new products department.

Mr. Ellis joined Plaskon in 1936 when it was merged with Unyte Corporation with which he had been associated from 1933. Previously he had attended Massachusetts Institute of Technology and Zürich University, Zürich, Switzerland.

Leonard C. Rose has been appointed Director of Purchases for the Colorado Fuel and Iron Corporation, Denver, Colo. Mr. Rose will maintain offices in Pueblo, Colo.

Ward F. Stevens, Purchasing Agent for the Connecticut Mutual Life Insurance Co., Hartford, Conn. has been advanced by the board of directors of company to the post of Assistant Secretary. He has been with the company since 1923 and has spent his entire career in purchasing and personnel work. Last year he served as president of the Association of Insurance Company Buyers, and last month was elected president of the Purchasing Agents Association of Connecticut, in which he has been active for many years.

E. V. Hardaway has been named Purchasing Agent of F. H. Maloney Co., Houston, Tex. Mr. Hardaway was with Oil Center Tool Co. for the past five years where he served successively as priorities manager and purchasing agent. He succeeds Howard E. Willson, who has been transferred to the sales department.

Joe Harnish, former Purchasing Agent for Anderson Bros. Supply Co. of Alaska, and recently with Alaska Merchandisers, has established himself as a Purchasing and Forwarding Agent, specializing in Alaska accounts. His offices are in the Smith Tower, Seattle, Wash.

William Lindersmith, formerly Purchasing Agent for Young Iron Works, has been named Seattle manager for Lawrence Totten Co., steel factors, with offices in the Securities Building.

K. D. Embry, Purchase Clerk in the general stores department of the Southern Pacific Lines, Houston, Tex., recently retired after 47 years' service with the company. Known as a "trouble shooter", Mr. Embry held the position in the stores department for 42 years, distinguishing

K. D. Embry

himself particularly during the war period by getting emergency deliveries when material shortage was the rule. His job also included buying food and hospital supplies for the Southern Pacific hospital association and athletic equipment for the Southern Pacific association.

Powell French has been named Purchasing Agent for Oil Center Tool Co., Houston, Tex. He has been with the company sixteen years, and was recently chief engineer.

T. L. Stevens, assistant to George Killion, president of American President Lines, San Francisco, has succeeded Fred Morgan as General Purchasing Agent of the company. Ernest E. Charleston has been named Assistant General Purchasing Agent. He was formerly assistant to the president of J. D. and A. B. Spreckels Co.

Thomas G. Carey has been advanced to the position of Purchasing Agent of Production Parts and Sub-Contracting by the Weatherhead Company, Cleveland,

Thomas G. Carey

O., according to an announcement by G. R. Young, Director of Purchases.

Mr. Carey has been in the employ of the company for the past two years in its production section and previously held an administrative position with the Chicago Ordnance District of the War Department. He graduated with an M. E. degree from Dayton University.

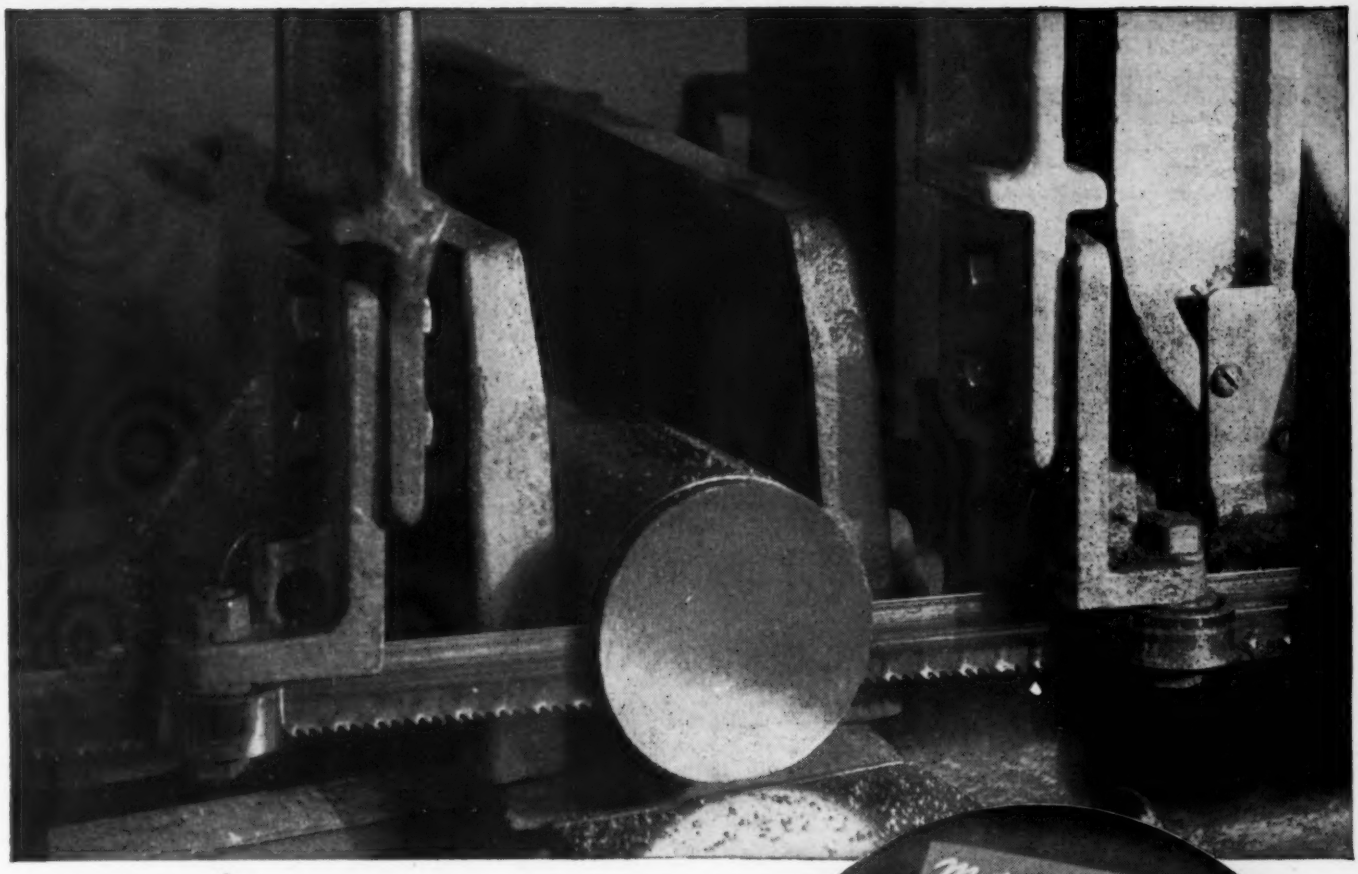
A. C. Hopcraft, Director of Purchases for Cleveland Worm & Gear Co., Cleveland, O, recently addressed the Sales Executive Club of the Columbus, O., Chamber of Commerce on "A Purchasing Agent's Viewpoint of a Sales Manager". Mr. Hopcraft is a past president of the Purchasing Agents Association of Cleveland and of the National Association of Purchasing Agents.

W. G. Mateer has been appointed Manager of Purchases and Stores for the Elgin, Joliet and Eastern Railway Co., Chicago, Ill. The position of Purchasing Agent for the company is abolished.

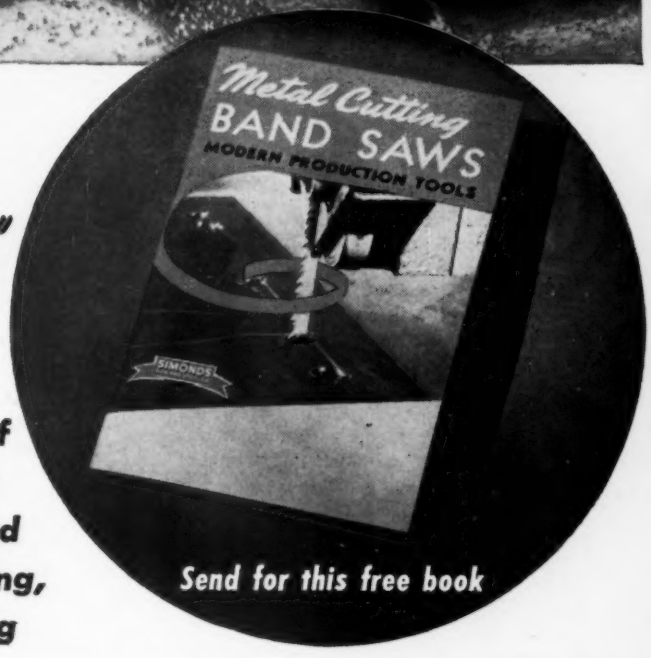
Howard A. Denomme has been appointed Purchasing Agent for the Miles Fox Co., Detroit, Mich.

Clifford E. Mack, Director, Federal Bureau of Supply, Treasury Department, was the principal speaker at a recent luncheon meeting of the Sales Executives' Club of Washington, D. C. His subject was "Looking Forward In Public Purchasing".

(*Please turn to page* 262)



Climb on the SIMONDS "BAND-SAW WAGON"



Save Thousands of Hours by Band-Saw Cutting . . . instead of Shaping, Milling, Turning, Drilling

Getting to be a "Big Parade" . . . the way shops are swinging to metal band-sawing . . . and keeping their one-purpose machines free to do the work for which they were designed.

Simonds Metal-Cutting Band Saws can do a score of jobs, and do them all at top speed and accuracy . . . cut-off work, contour cutting, and cutting of irregular shapes like jigs, dies, fixtures, as well as heavy straight production cuts . . . and many other similar jobs.

And Simonds Metal Bands earn top profits on these jobs because they're made to *stay* on the job many hours longer . . . running smoothly, easily, cleanly. Simonds special steel, perfect tooth-milling and even tooth-set . . . those are the Simonds *extras* that *pay you extra* on every Simonds Metal Band you buy. Order from your distributor today.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.
Other Divisions of SIMONDS SAW AND STEEL CO. making Quality Products for Industry

SIMONDS — Special Electric Furnace Steels
SIMONDS — Grinding Wheels and Grains
SIMONDS — Simonds Products for Canada

BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 416 W. Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Ave., Portland 4, Ore.; 31 W. Trent Ave., Spokane 8, Washington. *Canadian Factory:* 595 St. Remi St., Montreal 30, Que.

S. R. Secor has been made Assistant General Purchasing Agent for the Chesapeake & Ohio Railway, Cleveland, O. H. W. Brewer has succeeded R. L. Tindal as Purchasing Agent for the C & O.

A. G. Baker has succeeded H. G. Bartles as Purchasing Agent of the St. Louis Southwestern Railway Lines, St. Louis, Mo.

L. Carl Stevens has been made Director of Purchases for the Scott Paper Co., Chester, Pa., to act in a staff capacity to all plants of the company in the purchasing of basic items, including pulp, cases, wrappers, fuel, heavy chemicals and other vital supplies.

Victor G. Sandham has been appointed Purchasing Agent for the Chester plant of the company. The announcement of the appointments stated that they were in keeping with the company's objective of setting up each plant in the Scott group as an independent operating unit with a corporate consulting and coordinating staff.

A. N. Johnston has been appointed Assistant General Purchasing Agent of the Jones & Laughlin Steel Corp., Pittsburgh, Pa. Mr. Johnston joined the company in 1910 in the purchasing department and progressed through various positions in the department to his present appointment.

Charles W. Flasing now heads the Purchasing Department at the Champion Machine & Forging Co., Cleveland, O. He had been in charge of inventory control since 1946. Mr. Flasing joined Champion in 1943 after 15 years with Republic Steel Corp.

Ned Bender has been appointed Assistant State Purchasing Agent of the state of Alabama.

Russell C. Wenz, General Purchasing Agent of the Philadelphia Company, was the guest speaker at a recent meeting of the Pittsburgh Sales Executive Club. His subject was "Teamwork Between Salesmen and Purchasing Agents".

Malcolm Eddy is the new Purchasing Agent for the Capewell Manufacturing Co., Hartford, Conn. He formerly held the same position with the Gray Manufacturing Co.

George Murray has been promoted to Purchasing Agent of Purolator Products, Inc., Newark, N. J.

William J. O'Neill has been named head of the Purchasing Department at the National Screw & Mfg. Co., Cleveland, O., following the resignation of Ronald G. Burnham, Director of Purchases. Mr. O'Neill has been with the company for 11 years. He was made assistant purchasing agent in 1940, and purchasing agent in 1943.

William M. Williams has taken the post of the Purchasing Agent for Monmouth Products Co., Cleveland, O. He was formerly with the Harry Ferguson Co. as assistant director of procurement, and for eight years director of purchasing at Thompson Products, Inc.

Philip A. Diehl is Purchasing Agent and secretary of the Norwalk Paper Box Co., Cleveland, O. in which he is a partner with Jake Lederer, president of the company. Both men were formerly with the Great Lakes Box Co.

Wallace K. McAllister, Jr., has been named Assistant Purchasing Agent at the Universal Valve & Fittings Co., Cleveland, O., under Robert E. Trautman. An Army veteran, Mr. McAllister has been with the company since August, 1946.

Donald E. Hunter is Purchasing Agent and office manager for Boyer Industries, Cleveland, O. A graduate of Western Business University, he saw service with the army in World War II. He was for 10 years office manager at the Overly-Hautz Co.

FRANK G. IDLER

Frank G. Idler, one of the founders and charter members of the National Association of Purchasing Agents, died suddenly at his home in South Orange, N.J., on November 25. He was 78 years old.

Mr. Idler had been employed in the purchasing department of the Prudential Insurance Company of America, Newark, N. J. for 40 years, 25 of which were spent as General Purchasing Agent, the post he held when he retired in 1933.

AMONG THE COMPANIES YOU BUY FROM

Detroit, Mich.—Hercules Powder Co. Rufus F. Wint has been added to the company's cellulose products department branch office staff here as technical sales representative.

Minneapolis, Minn.—St. Regis Paper Co. A new Panelyte division district sales office has been opened at 2016 Seabury Avenue, to service this city, St. Paul and surrounding area.

New York, N. Y.—Monsanto Chemical Co. An enlarged office has been opened at 445 Park Avenue.

Atlanta, Ga.—Wagner Electric Corp. L. V. Williams has joined the sales department.

Philadelphia, Pa.—Westinghouse Electric Corp. E. M. Powell has been named Middle Atlantic district manager of the Sturtevant division, to direct sales and installation of air handling and air conditioning equipment.

New York, N. Y.—Owens-Corning Fiberglas Corp. The Fiberglas textile division has been established at 16 East 50th Street.

Denver, Colo.—Link-Belt Co. Schloss & Shubart, Link-Belt representatives here, have moved to a new location at 1626 Wazee St.

Hartford, Conn.—Ward Leonard Electric Co. A New England office has been opened at 37 Webster St. C. F. Shea, formerly in the home office sales engineering department, is district manager.

Pittsburgh, Pa.—The American Agile Corp. Industrial Engineering & Sales Co. has been designated sales outlet for the company's welding electrodes and accessories in western Pennsylvania.

New Britain, Conn—Corbin Screw Division, The American Hardware Corp. Emmet F. Harding has succeeded Elliot

Emmet F. Harding

C. Paddock as general sales manager. Mr. Harding was made assistant general sales manager in 1944, and held the post until his present appointment.

Detroit, Mich.—E. W. Bliss Company. Francis J. Sehn has been named sales engineer, and will service stamping manufacturers in the Detroit area.

Houston, Tex.—Tube Turns, Inc. W. B. Whentoff has returned here to take charge of marketing the company's products. With Tube Turns for 20 years, he established the Houston office in 1941.

Phoenix, Ariz.—Illinois Testing Laboratories, Inc. Alfred C. Baechlin, 2033 N. Fortieth St., has been named representative for the company's line of Alnor scientific measuring instruments.

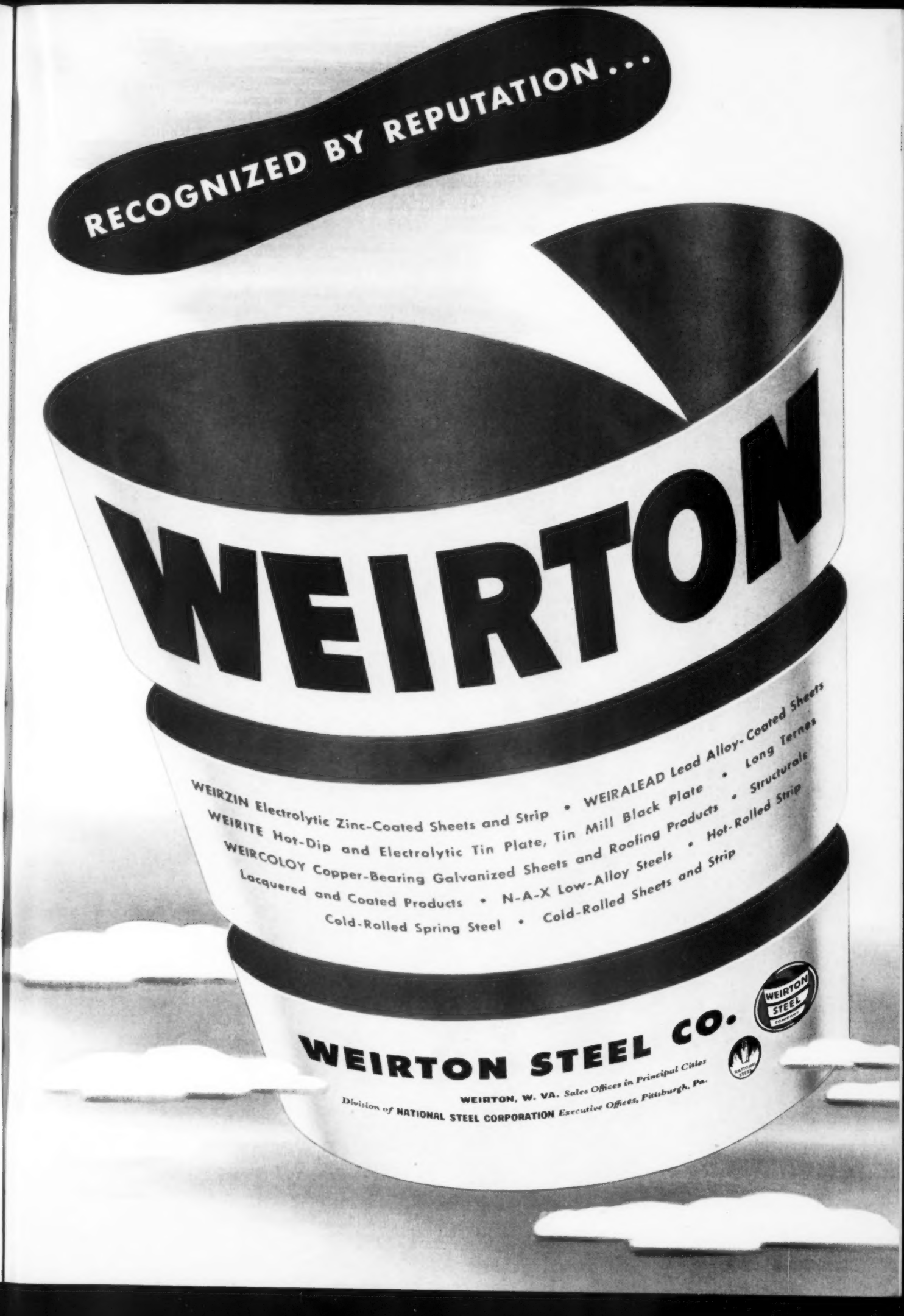
Inglewood, Calif.—Sundstrand Machine Tool Co., Industrial Hydraulic Division. Burgan Machinery Co., 9527 Fifth Avenue, has been appointed western sales representative.

Milwaukee, Wis.—Allis-Chalmers. E. E. Ellis has been named engineer-in-charge of sales, motor and generator section of the company's electrical department.

Tulsa, Okla.—Wagner Electric Corp. H. M. Furtney will be in charge of the company's sub-office here, which was recently transferred to the Kansas City branch territory.

Newark, N. J.—Federal Electric Products Co. Robert C. Graves has been appointed vice-president in charge of sales.

(*Please turn to page* 266)


RECOGNIZED BY REPUTATION...
WEIRTON
WEIRZIN Electrolytic Zinc-Coated Sheets and Strip • WEIRALEAD Lead Alloy-Coated Sheets
WEIRITE Hot-Dip and Electrolytic Tin Plate, Tin Mill Black Plate • Long Ternes
WEIRCOLOY Copper-Bearing Galvanized Sheets and Roofing Products • Structurals
Lacquered and Coated Products • N-A-X Low-Alloy Steels • Hot-Rolled Strip
Cold-Rolled Spring Steel • Cold-Rolled Sheets and Strip
WEIRTON STEEL
STEEL
WEIRTON STEEL CO.
WEIRTON, W. VA. Sales Offices in Principal Cities
Division of NATIONAL STEEL CORPORATION Executive Offices, Pittsburgh, Pa.

For Production Efficiency

"By Courtesy of the American Can Company"

SUPER CANTON #10.
New type work glove guaranteed to outwear any canvas glove, but for all its toughness, it is soft and flexible, with a non-slip surface that provides a safe, sure grip.

Today, more than ever before, production efficiency is the key to profits . . . and this applies to the farmer and the "little fellow" as well as to "big business". Better work gloves help to promote better production efficiency, for skilled hands that can work in comfort with full protection can do a better job.

Riegel's WAGON BRAND Work Gloves are the best you can buy . . . comfortable, durable and economical . . . qualities that are made possible by complete Riegel control in one plant, from the raw cotton to the finished glove.

To get "The Right Glove for Every Job", specify Riegel's WAGON BRAND.

Riegel WORK GLOVES

RIEGEL TEXTILE CORPORATION 342 Madison Ave., New York 17, N. Y.

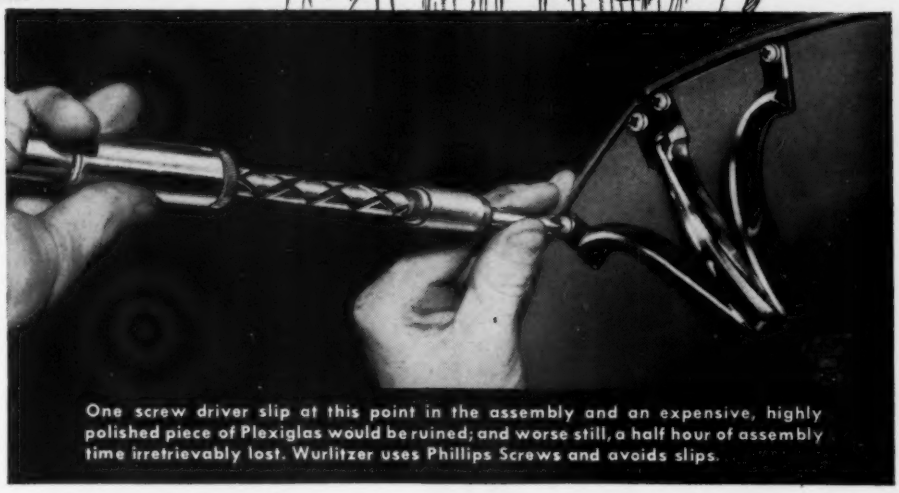
"FASTER four ways" says The Rudolph Wurlitzer Co.

Extracts from another of the series of independent surveys by James O. Peck Co., of assembly savings made with Phillips in leading plants.

"We specify Phillips Screws for our coin-operated phonographs," said Wurlitzer's engineering staff, "because they're faster four important ways.

"Start quicker, drive faster. Although we haven't made actual time studies, it's fairly easy to see how much shorter assembly time is with Phillips Screws. That's natural . . . the perfect fit of the driving bit in the Phillips Recess makes locating the screw and driving it much more positive.

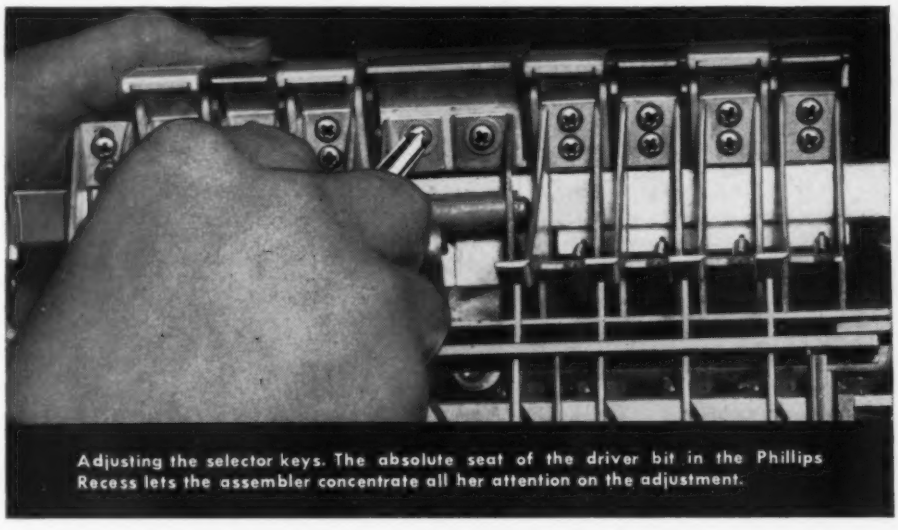
"Tricky assemblies simplified. The firm seat of the driver in the Phillips Recess speeds up otherwise slow jobs such as blind driving, sensitive adjustments, spring assemblies, and driving with jigs.



One screw driver slip at this point in the assembly and an expensive, highly polished piece of Plexiglas would be ruined; and worse still, a half hour of assembly time irretrievably lost. Wurlitzer uses Phillips Screws and avoids slips.

"No mental hazards . . . steadier work. Inside and out, there are a lot of places where a skidding screw driver would do a vast amount of harm to these machines. Since that danger is non-existent with Phillips Screws, our assemblers make better time, work more smoothly.

"New help learns faster. Even people who have never driven screws in factory production can be trained to drive Phillips Screws much easier and faster than they could be taught to drive slotted screws. Also eliminated is the danger to hands and arms from jagged, burred heads turned up so frequently on slotted screws. And far fewer screws are dropped on the floor . . . a not inconsiderable saving to us."



Adjusting the selector keys. The absolute seat of the driver bit in the Phillips Recess lets the assembler concentrate all her attention on the adjustment.

Ideas for your assembly operations . . . FREE, in this Wurlitzer report and in other assembly reports . . . covering metal, wood and plastic products. Use coupon.

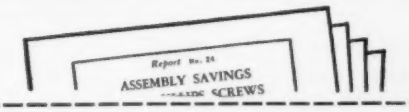
PHILLIPS *Recessed Head* SCREWS

Wood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

American Screw Co.
Central Screw Co.
Continental Screw Co.
Corbin Screw Div. of American Hdwe. Corp.
Elco Tool & Screw Corp.
The H. M. Harper Co.
International Screw Co.
Lamson & Sessions Co.
Milford Rivet and Machine Co
National Lock Co.

24 SOURCES

National Screw & Mfg. Co.
New England Screw Co.
Parker-Kalon Corporation
Pawtucket Screw Co.
Pheoll Manufacturing Co.
Reading Screw Co.
Russell Burdsall & Ward Bolt & Nut Co.
Scovill Manufacturing Co.
Shakeproof Inc.
The Southington Hardware Mfg. Co.
The Steel Company of Canada, Ltd.
Sterling Bolt Co.
Stronghold Screw Products, Inc.
Wolverine Bolt Company



Phillips Screw Mfrs., c/o Horton-Noyes
1800 Industrial Trust Bldg.,
Providence, R. I.

Send me reports on Assembly Savings with Phillips Screws.

Name.....

Company.....

Address.....

P- 5

Tulsa, Okla.—Welding Fittings Division of Tube Turns, Inc. Robert S. Tyler Jr. has been placed in charge of the company's newly established mid-continent district with headquarters at 311 Tuloma Building.

Los Angeles, Calif.—Welding Fittings Division of Tube Turns, Inc. Norton

Norton P. Bosemer

P. Bosemer has been placed in charge of the company's office at 1489 Washington Blvd.

New Orleans, La.—Berger Manufacturing Division, Republic Steel Corp. Industrial Sales Co., 339 Carondelet St., has been appointed factory representative.

Houston, Texas—Plant Products Division, The National Supply Co. Lloyd A. Harris, diesel engine specialist, has been transferred here to represent the company in the sales and service of Superior engines in all banches of the oil industry.

Kingsport, Tenn.—Leslie Co. Equipment Sales Corp. has been designated to represent the company in eastern Tennessee to handle industrial sales and service on pressure and temperature regulators and controllers, strainers and whistles.

Schenectady, N. Y.—General Electric Co. The following appointments have been made in the apparatus department: W. V. OBrien as assistant general manager of sales; R. M. Darrin, manager of central station division, succeeding Mr. O'Brien; J. C. Miller, assistant to the manager of sales; and H. P. Bish, manager of aircraft, federal and marine divisions.

Cincinnati, O.—Timken Roller Bearing Co. William E. Bryden, sales engineer, has been transferred to here from the Chicago office. He will be succeeded at Chicago by William T. Strickland.

Detroit, Mich.—Fred H. Schaub Engineering Co., Inc. James B. Singelyn, 18700 Woodward Ave., has been named representative in eastern Michigan.

New York, N. Y. — Swan-Finch Oil Corp. Anthony J. Zino has been appointed assistant sales manager of the industrial sales division, with headquarters in the home office, R.C.A. Building.

Portland, Conn.—Anderson Oil Co. Clyde A. Sluhan has been made manager of industrial sales.

Grand Rapids, Mich.—Link-Belt Company. A sales office has been established at 406-7 Murray Building, 48 Division St., North, Postal Zone 2. Peter Groustra, formerly district sales engineer at Detroit, is in charge of the office.

Birmingham, Ala.—Allis-Chalmers. C. E. Lacy has been transferred to the company's office here, where he will concentrate on the sale of products of the basic industries department.

Atlanta, Ga.—Votator Division, The Girdler Corporation. Southeastern district manager L. N. Harrison has moved his headquarters fom Charlotte, N. C., to 505 Forsyth Building, here.

Chicago, Ill.—Fairbanks, Morse & Co. T. M. Robie has been named to the position of manager of the General Diesel Sales division of the company.

Morris Birken

Brooklyn, N. Y. — Detecto Scales, Inc. Morris Birken has been added to the staff of the industrial sales division.

Denver, Colo.—Burlington Instrument Co. W. Clif McLoud & Company, 711 Colorado Building, is now representing Burlington in the states of Wyoming, Utah and Colorado.

Detroit, Mich.—Celluplastic Corp. L. T. Swallow and Associates, Boulevard Building, have been named sales representatives covering Michigan and Toledo, O.

Pittsburgh, Pa.—Pennsylvania Salt Manufacturing Co. William J. Hennessy has been named district sales manager for the special chemicals division of the company. He will supervise special chemicals sales operations in Pittsburgh, Cincinnati, Cleveland, Buffalo and Altoona territories.

Lakeville, Conn.—Sundstrand Machine Tool Co., Industrial Hydraulic Division. Bruce F. Olson, Box 166, has been appointed eastern sales representative.

Chicago, Ill.—The Carborundum Co. W. T. McCargo has been named assistant director of sales in charge of operations in the western region.

Detroit, Mich.—Hammel-Dahl Co. The Metrol Company has been appointed sales representative for the lower peninsula of Michigan and northwest Ohio.

Milwaukee, Wis.—Allis-Chalmers. Managers in charge of both sales and engineering have been appointed as follows: H. A. Bartling, in the electronics section; L. W. Long in the substation section; R. M. Casper in the motor and generator section; and G. W. Clothier in the transformer section.

Portland, Ore.—Hagan Corp. The United Engineering Company has been designated representative for all the company's engineering services and products, and those of its associated companies, in the Oregon area.

Chicago, Ill.—Foote Bros. Gear and Machine Corp. B. H. Quackenbush, formerly assistant sales manager of the industrial gear division, is now sales manager.

Frederick M. Banfield has rejoined the Cleveland Hobbing Machine Co., Cleveland, O., as Purchasing Agent. He joined the company in 1929, and left in 1943 to go to the Cleveland Pneumatic Tool Co. Recently he was with the War Assets Administration.

Akron, O.—The Bellows Company. A. S. Terry has been named sales manager. He was formerly head of the Detroit district office.

Boston, Mass.—General Electric Co. Douglas P. Waterhouse has been appointed northeastern district representative for accessory equipment.

New York, N. Y.—Burndy Engineering Co., Inc. Eric E. DeMarsh has been appointed sales manager.

Hartford, Conn.—The Hart Manufacturing Co. John F. Dreier, former assistant

John F. Dreier

sales manager, has been named sales manager to succeed the late Frank W. Watts.

Louisville, Ky.—Hewitt-Robins Inc. Industrial Equipment Co. has been appointed distributor of the entire Hewitt rubber division's line for all industries within a 45-mile radius of Louisville.

(*Please turn to page* 268)

FOR brass wire, for bronze nuts and bolts, copper rivets and burs, copper and brass wire cloth . . . for whatever you need in copper and brass products . . . call Chase.

A coast-to-coast network of Chase warehouses and sales offices . . . in 26 leading industrial cities . . . is prepared to take your order. If your local Chase warehouse does not have the items you want in stock, they'll make every effort to get them for you from one that *has*.

Chase Brass & Copper Co. Incorporated, Waterbury 91, Conn. A Subsidiary of Kennecott Copper Corporation.

Chase

the Nation's Headquarters for
BRASS & COPPER

WATERBURY 91, CONNECTICUT — SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . *handiest way to buy brass*

ALBANY† ATLANTA† BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON† INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER† SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON† (†Indicates Sales Office Only)

INDUSTRIAL DEVELOPMENTS

Leeds & Northrup Co., has purchased a building at 34 E. Logan St., Philadelphia, Pa., adding approximately 11,000 square feet to their present capacity.

Jessop Steel Company, Washington, Pa., is planning a 200 per cent increase in its production facilities for stainless-clad steel by the addition of new equipment and the adoption of new manufacturing techniques.

The Index Machine Co., Jackson, Mich., has been formed, as sales representative for the Index Machine and Tool Co., also of Jackson.

The Mullins Non-Ferrous Castings Corp., 1800 South Eighteenth St., St. Louis, Mo., has been formed for the manufacture of castings of aluminum, copper, brass bronze and like materials.

Saran Line Pipe Co., Detroit, Mich., has been formed and will act as exclusive distributor for the Dow Chemical Company's recently developed specialty pipe and fittings.

Celanese Corporation, New York, N. Y., has taken over all activities formerly conducted by the following manufacturing and sales subsidiaries: Celanese Co., Inc.; Celanese Plastics Corp.; Celanese Export Corp.; Tubize, Inc.; Staunton Textile Corp., and Bridgewater Textile Corp.

Visual Planning Equipment Co., 6247 Broad St., Pittsburgh 6, Pa., is a new company for the design, promotion and sale of 3-dimensional planning equipment.

Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn., has taken over the manufacture of the products of the Magnetic Gage Co. of Akron, O. Operations will continue at the Akron plant until early in 1948 and then will be moved to West Hartford.

The Wadsworth Equipment Co., Akron, O., is the new name of the former Wadsworth Core Machine and Equipment Co.

The Timken Roller Bearing Co., Canton, O., has purchased the eight-acre site and taken over all construction on a new $150,000 rock bit plant at Colorado Springs, Colo.

Bodine Electric Co., Chicago, Ill., has put into operation a new plant at 2264 West Ohio St., for the construction of its Type U motor.

Economy Pumps, Inc., Hamilton, O., has acquired from the War Assets Administration a wartime addition to its plant, built by the Defense Plant Corp. The plant will house two subsidiaries, Liberty Planers, Inc. and the Klipfel Mfg. Co.

(*Please turn to page* 270)

Wolverine Tube Division, Calumet & Hecla Consolidated Copper Co., Inc., Detroit, Mich., has opened a new mill depot at 11-26 46th Road, Long Island City, N. Y.

Thermoid Co., Trenton, N. J., announces that a new manufacturing unit at Nephi, Utah, is undergoing pilot runs, with full production anticipated shortly.

Airadio, Inc., Stamford, Conn., has undergone a change of ownership and management. J. B. Cobrain has sold his interest to Jay Sullivan, formerly vice-president and general manager, and others. Mr. Sullivan is now president and treasurer.

American Brake Shoe Company opened two new non-ferrous foundries at Niles, O. and Meadville, Pa. on December 8 and 9 respectively. The new Meadville plant, replacing an older plant of the

American Brake Shoe Meadville plant

National Bearing division formerly located there, will produce bronze bearings and castings. The foundry at Niles will manufacture railroad journal bearings. The plants are two of six which the company has constructed under its $15,000,000 plant modernization and expansion program.

Arsenau-Price Co., 10840 East Warren Ave., Detroit 13, Mich. has been formed for the manufacture of a complete line of standard straight shank chucking reamers. The company also manufactures special reamers, end mills, milling cutters and counterbores.

Woodruff & Stokes Co., 585 Washington St. Quincy, Mass., is a new company organized to produce precision taps, dies and other small tools for opticians, watchmakers and jewelers.

Yoder Die Casting Inc. has opened a new plant at 727 Kiser Street, Dayton, O.

Reps Tool Co., manufacturer of pipe and stud extractors, and formerly of New York city, is now located at 94 Allyn St., Hartford Conn.

Continental Can Co. has begun construction on a paper converting plant for the manufacture of "Leverpak" fibre shipping drums at Tonawanda, N. Y. The factory, which is expected to be complete and in production by August, 1948 will comprise approximately 200,000 square feet.

Portable Electric Tools, Inc., has moved its office and factory to a new plant at 255 West 79 St., Chicago 20, Ill.

(*Please turn to page 272*)

Accurate PIPE THREADS Extra Fast

RIDGID No. 65R offers near machine-speed in threading 1" to 2" pipe

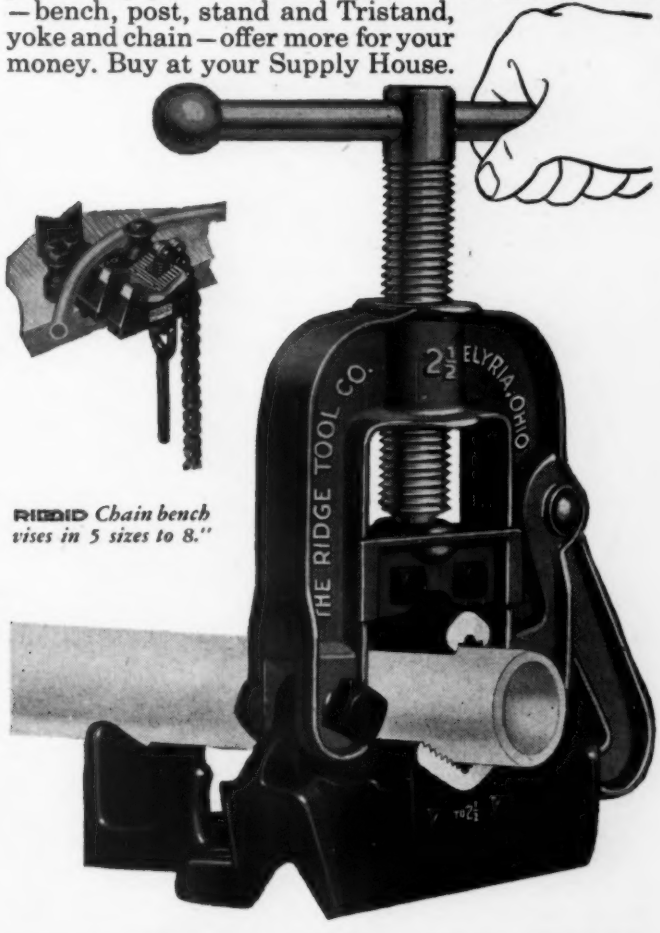
● It's unusually fast and easy for two reasons. You save on get-ready—10 seconds sets it to pipe size (1," 1¼," 1½," 2"), both chasers and workholder. And it threads any kind of pipe fast with surprisingly little effort—precision-made high-speed tool-steel dies that stay in the efficiency-balanced die stock. Factory tested—see test sample in each tool. It pays you to buy No. 65R—at your Supply House

Sulphur-Lard RIDGIL (Ridge Oil) for better threads.

THE Work-Saver BENCH PIPE VISE

RIDGID Vises are all equipped with handy pipe benders and rests . . .

● Look for red yoke RIDGIDs and you find vises that make your pipe work easier, more efficient. Integral pipe rests support pipe firmly for threading and cutting. Handy built-in benders won't flatten pipe. Tool-steel LonGrip jaws grip solidly but protect polished pipe. 8 sizes for pipe to 6." RIDGID vises—bench, post, stand and Tristand, yoke and chain—offer more for your money. Buy at your Supply House.



RIDGID Chain bench vises in 5 sizes to 8."

RIDGID WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

I-T-E Circuit Breaker Co., Philadelphia, Pa., has acquired the Railway and Industrial Engineering Co., Greensburg, Pa.

Avery Adhesive Label Corp., Los Angeles, Calif., has begun construction of a new factory and office building in Monrovia, Calif.

Standard Oil of California has announced plans for immediate construction in the Salt Lake City area of a refinery unit costing more than $5,000,000 to serve the Intermountain area. Completion is scheduled within the next twelve months.

Fairbanks, Morse & Co. Westco Works, St. Louis, Mo., recently opened a new $150,000 office and warehouse addition.

Hunt-Jordan Co., 1147 S. Independence Blvd., Chicago 24, Ill., has been organized to handle exclusive representation for resistance welding equipment of the Progressive Welder Co. in northern Illinois, including Chicago, and part of Iowa and Indiana.

Johns-Manville Corporation has purchased Van Cleef Bros., Chicago, Ill., manufacturers of "Dutch Brand" industrial and automotive products.

Vanadium-Alloys Steel Co., Latrobe, Pa., has announced that its Speed-Cut free-machining die steel is now furnished in plates of large area when specified.

Western Division, Monsanto Chemical Company, has announced plans to install a small plant at Decatur, Ill. moving to that city a portion of the company's Portsmouth, Va. operation which manufactures glues and adhesives.

U. S. Industrial Chemicals, Inc., has transferred the insecticide division of its subsidiary Dodge & Olcott, Inc. to U.S.I., and it will hereafter be operated as an integral part of the parent company.

Crosley Motors Inc., has begun an expansion program to increase its Cincinnati, O., engine plant facilities by 21 per cent and its final assembly plant at Marion, Ind., by 40 per cent.

* * *

PERSONNEL CHANGES MADE AT THERMOID COMPANY

The following personnel changes have been announced by the Thermoid Co., Trenton, N. J., as part of its expanded sales and manufacturing program:

Jack Brand, formerly assistant sales manager for the automotive replacement division will handle industrial sales for the state of Colorado, with headquarters at Denver. J. J. Chamberlain will handle industrial sales in the state of Washington and the northern half of Oregon, with headquarters in Seattle. E. J. Dunlap has been transferred from industrial sales promotion at Trenton, N. J., to San Francisco, Calif., where he will

(*Please turn to page* 274)

(*Continued from page 272*)

have charge of industrial sales for the northern half of California and southern Oregon. A. Fred Matheis, in industrial sales at Trenton headquarters for twenty years, assumes the duties of industrial sales promotion manager.

CALVERT CAREY ELECTED PRESIDENT OF YALE & TOWNE

Calvert Carey has been elected president, and Fred Dunning executive vice-president of the Yale & Towne Manufacturing Co., New York N. Y. Mr. Carey is the fifth president of the company, succeeding the late W. Gibson Carey Jr.

Calvert Carey

Mr. Carey, who joined the company in 1934, was vice-president in charge of manufacture and directed the extensive program of increased productive capacity for the company's traditional and new products. Mr. Dunning, who will continue to serve as secretary and treasurer of the corporation, joined Yale & Towne 25 years ago as chief accountant. Both Mr. Carey and Mr. Dunning have been serving as directors of the corporation for many years.

G. E. ELECTS C. C. WALKER COMMERCIAL VICE-PRESIDENT

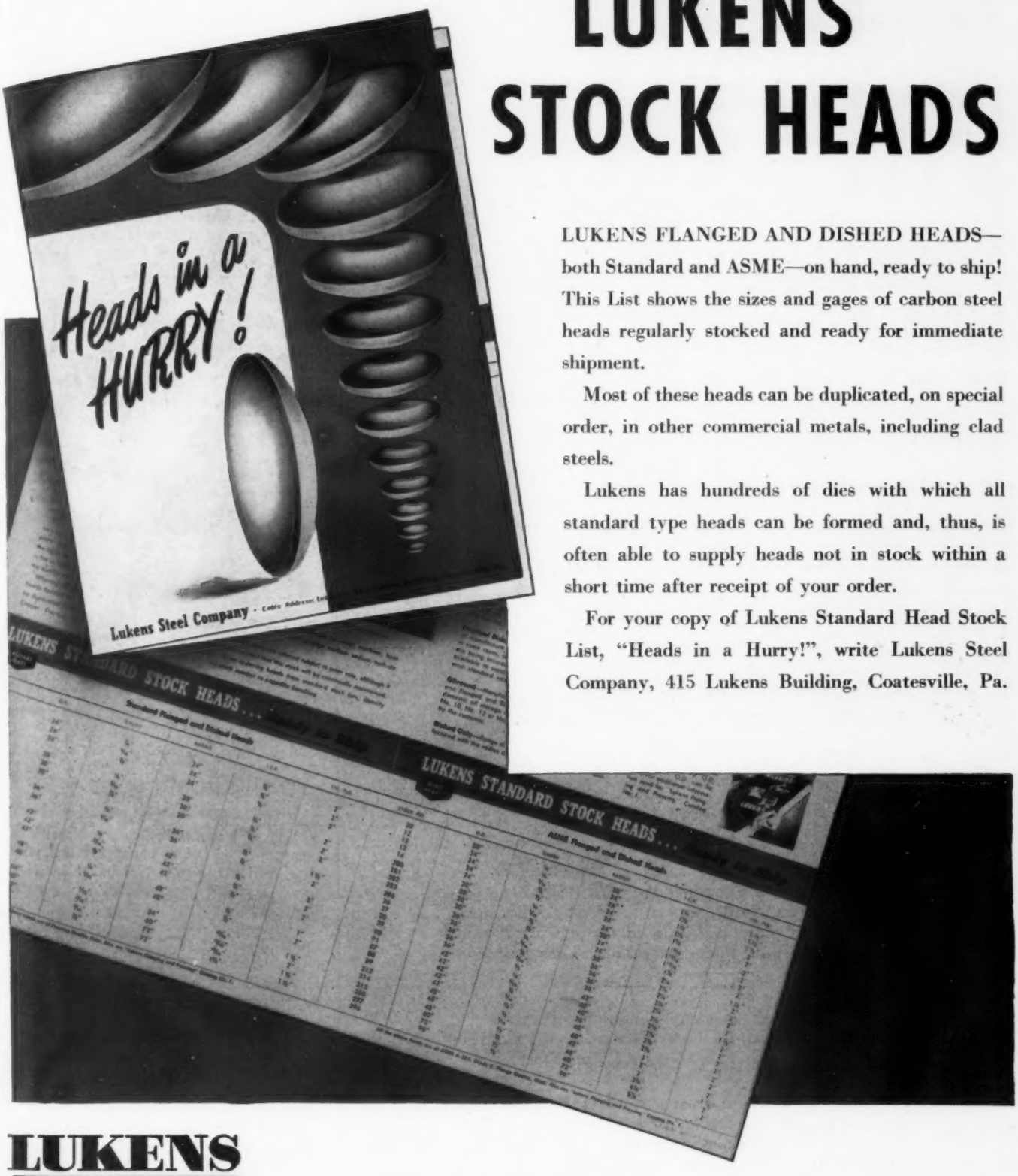
C. C. Walker has been elected a commercial vice-president of the General Electric Co. by the board of directors. Mr. Walker assumes responsibilty for customer relations in the New England territory, with headquarters in Boston, Mass., and he succeeds T. S. Knight, General Electric commercial vice-president, who retired after 44 years of service with the company. Mr. Walker had been manager of the New England sales district of the G-E Lamp Department since 1938.

PENNSALT CHANGES NAME OF ACID-PROOF CEMENT

The Pennsylvania Salt Manufacturing Co. has announced a change in the name of its acid-proof Asplit F cement to Pennsalt HF cement. Joseph J. Duffy Jr., manager of sales in the special chemicals division, explained that the new name is more in conformity with other company named products, with the HF part denoting the cement's complete resistance to hydrofleuric acid in all strengths.

(*Please turn to page 276*)

You should have this List of LUKENS STOCK HEADS



LUKENS FLANGED AND DISHED HEADS—both Standard and ASME—on hand, ready to ship! This List shows the sizes and gages of carbon steel heads regularly stocked and ready for immediate shipment.

Most of these heads can be duplicated, on special order, in other commercial metals, including clad steels.

Lukens has hundreds of dies with which all standard type heads can be formed and, thus, is often able to supply heads not in stock within a short time after receipt of your order.

For your copy of Lukens Standard Head Stock List, "Heads in a Hurry!", write Lukens Steel Company, 415 Lukens Building, Coatesville, Pa.

LUKENS HEADS ★

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For the best of the month's offerings, see page 14 of this issue. Check off what you want on the business reply card at the bottom of page 19, mail to us.

When we asked a cross section of PURCHASING readers to rate the articles and features of a typical issue in order of their importance, the Free Informative Literature Section proved to be well in the first division.

Your catalog file will always be up to date if you cultivate the excellent habit of looking over the free literature offerings each month, and letting PURCHASING obtain for you what you want.

FEDERATED METALS LICENSED TO MAKE OLYMPIC BRONZE INGOT

Federated Metals Division, American Smelting and Refining Company, has been licensed to manufacture and sell Olympic Bronze ingot, a silicon bronze alloy, the rights to which are owned by the Chase Brass & Copper Company. Max Robbins, general manager, stated in making the announcement that Federated Metals will market Olympic Bronze to foundries through its regular sales channels. Chase Brass & Copper will continue to produce wrought and extruded forms of the alloy.

Olympic Bronze is said to have high corrosion resistance and strength, and the ability to produce castings with sharp detail, and to be often selected because of the tin saving it permits.

RYERSON COMPLETES LARGE ADDITION IN CLEVELAND

New offices and a large addition to the existing warehouse facilities at E. 53rd St. and Lakeside Ave., Cleveland, O., have recently been completed by Joseph T. Ryerson & Son, Inc., distributors of steel from stock.

Ryerson's new building houses huge warehouse and offices

The new building provides 80,000 additional square feet of heated warehouse space and approximately 13,000 square feet in which is housed the company's new offices. Total floor area of the entire property is now about 250,000 square feet.

SPECIAL COURSE IN LABELING

A special course in labeling operations was presented before packaging and purchasing department personnel of McKesson & Robbins, Incorporated, Bridgeport, Connecticut.

The labeling course was arranged under the direction of H. F. Brownell, Superintendent of the Manufacturing Division. Key packaging department supervisors, mechanics and operators attended.

National Adhesives, suppliers of adhesives to McKesson & Robbins presented the course, and Fred W. Bradley, Manager, New England Division, and William Sederlund, Technical Service Manager were the principal speakers.

The course included care and maintainence of labeling machines, container selection, label specifications, the nature of glues and their storage and handling, as well as the many factors which prevent the hazards of poor labeling. After the formal presentation, specific labeling difficulties were taken up in open discussion.

(*Please turn to page* 278)

TRAFFIC COP OF THE AIRWAYS

Down from the sky the great liners come, guided with safety by the Air Traffic Control. Even while planes are many miles away, pilots are in constant contact with the Tower, receiving approach and landing instructions through a marvelous communication system in which Exide Batteries play a vital role.

There are Exide Batteries for every storage battery need. They supply power for time- and cost-saving battery electric industrial trucks and mine haulage units. They are used by telephone and telegraph companies and radio stations. On railroads and ocean vessels, they perform a wide variety of tasks. And on millions of cars, they give daily proof that "When it's an Exide, you start."

For 60 years the name Exide has stood for dependability, economy and long life. Information regarding the application of storage batteries for any business or industrial need is available upon request.

Exide
BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

GENERAL ELECTRIC OPENS NEW PLASTICS LAMINATING PLANT

General Electric Company's new Laminated Plastics Plant at Coshocton, Ohio, designed to meet the exacting requirements of complex and closely controlled processes in the laminated plastic manufacture of everything from gears and bearings to insulators and refrigerator door panels, was recently officially opened.

The laboratory shows the type of lighting and construction employed throughout the office building.

The new plant, now employing more than 600 workers, replaces former G-E facilities at Lynn, Mass., contains more than 300,000 square feet of floor space in the single story steel frame plant and the two-story and basement office building. The plant is completely equipped for the manufacture of high pressure laminating, fabrication of these materials and the production of Fabroil gears.

The plant consists of three buildings, with the principal manufacturing plant comprising 235,820 square feet. These include the main factory, and smaller buildings for the power plant and the manufacture of laminating varnish. Buildings are of steel and brick construction.

The large press in the foreground is used in the forming of decorative laminated plastics for table and counter tops and other uses.

The largest press is a 5000 ton affair capable of producing laminated sheets 50 x 100 inches. Another giant press forms sheets 30 x 110 inches, while other presses range from 10 to 1800 tons.

The two-story office building section, 45 ft. x 226 ft., is air conditioned, and has been equipped throughout with continuous open fluorescent troffer lighting units mounted at a height of 10 ft., and 3 ft. apart, to provide 60 foot candles of illumination.

One of the interesting features of the new plant is that its electric substation with two 5000 kva units gives the factory a greater power potential than that required by the city of Coshocton itself. The daily water consumption also rivals that of the entire city.

We take our own medicine*

In order to speed up quality production and cut costs, widely varied industries depend on General Electric Air Conditioning and Refrigeration equipment.

In abrasive manufacture, anodizing aluminum, cooling quench bath solutions, curing concrete samples . . . and a host of other industrial operations, G-E heat transfer equipment is cutting spoilage, reducing unit costs.

G-E Air Conditioning has also cleared the way in many fields for better organization of factory and office space, for simplified development and testing and for utilization of new techniques and processes.

The free book offered below will give you valuable suggestions on applications of heat transfer equipment to your business. For more specific help, call your General Electric Contractor.

GENERAL ELECTRIC

Industrial Refrigeration and Air Conditioning

Get this FREE book

"New Industrial Dimensions" describes 17 important applications . . . gives photos and diagrams of basic heat transfer methods.

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Please send me FREE copy of the General Electric book "New Industrial Dimensions."

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"THE IMPORTANCE OF PURCHASING AT TIMKEN"

A Radio Talk by D. A. Bessmer
Director of Purchases

The following is one of a series of 53 radio talks over station WHBC, Canton, Ohio, by executives and department heads of the Timken Roller Bearing Co., of that city, each covering some particular phase of the company's operation:

"In these days of scarcity of almost every commodity, perhaps there is an interesting story in the activities of our purchasing department involving $50,000,000 yearly, $4,000,000 monthly, $200,000 daily, or $25,000 every hour in the procurement of necessary products ranging from the smallest nail to the largest piece of machinery. It is the function of the purchasing department to see that this material flows into our various plants in a steady stream of the proper quantity and quality so that each of us Timken men and women is enabled to perform his part in producing Timken products without interruption.

"First let us consider the purchasing of production material. For the steel mill we buy raw materials which come from various producing points—from the Philippines for our chromium alloy ores to our local Stark County for hot tops and clay products. Although we have limited storage facilities for emergency use, most of the production materials must be scheduled into our plants so that we have it all arrive simultaneously for more or less immediate use in our electric and open hearth furnaces.

"For instance, the chromium ore comes by boat from the Philippines to Tacoma, Wash., where it is refined and shipped by car to our Canton plant as a ferro chromium alloy. At the same time we have scheduled nickel from the Sudbery nickel district in Canada for shipment to Canton. Next we must consider the fluxes, such as fluor spar which moves up the Ohio River by barge from the Rosiclaire, Illinois, district; and next, scrap which comes from automobile plants or other sources where scrap is a by-product.

"Next, pig iron from one of the basic iron blast furnaces, and then limestone and burnt lime from one of the limestone quarries. Fuel oil comes from Texas, iron ore from the Mesaba range in Minnesota, and so on, until we have all of the raw materials arranged so that our steel mill melt shop can produce a heat steel.

"Bear in mind the melters cannot go to work unless all the various alloys and materials are at hand ready for them to produce our high quality alloy steel.

"So the chromium from the Philippines, the nickel from Canada, the fluor spar from Illinois, the scrap from Michigan, the oil from Texas, and the iron ore from Minnesota have to come into our plant at one time and on schedule so we can make steel in continuous production, and it means also these items must continue to flow for steady operation.

"Now the steel has been made and the

(*Please turn to page* 282)

(*Continued from page* 280)

Bearing Factory raw material, namely, tubing wire, and so forth, moves from our mill to the Bearing Factory. We must have grinding wheels, tools and cage steel available to continue the manufacture of our tapered roller bearings. We must have plenty of grinding and cutting oils and other lubricating quantities of grinding wheels and innumerable other perishable tools to insure the flow of bearing parts through our plants without interruption.

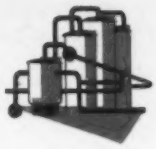
"We must also make sure there are quantities of shipping tubes and packing boxes so that our finished product can be properly packed and shipped to a customer because a precision-made product such as ours must be carefully wrapped, boxed and shipped for our many customers' machines, automobiles, and farm equipment.

"Let us now consider maintenance and repair material. We know any part which moves eventually wears out, and we also know a machine must be in its best possible repair in order for us to make the best possible product with it. For this reason we try to keep repair parts on hands at all times, but sometimes it seems almost impossible to get repair parts to equip a machine. Therefore, when we get a requisition for repair parts, we immediately find a supplier to make or furnish the part and constantly follow the order through their plant. Sometimes, we help them get a forging or casting to make a part, or we expedite a gear for one of their machines so it can be repaired, and subsequently used in making a repair part for us. We remember the old story about the war being lost for the want of a horsehoe nail. Consequently, we do not hesitate to go to any end to get a part and keep our plant operating at full production schedule.

"So you see the purchasing department is kept pretty busy searching for new sources, scheduling materials into our plants, helping sources keep materials coming to us, all of which is not the easy process of just writing a purchase order and waiting for the order to be delivered.

"We purchase millions of dollars of material, equipment and equipment repairs yearly, and purchase the best money can buy so that we can continue to make the finest alloy steels, anti-friction bearings, and rock bits on the market. We fully realize that to make a fine product we must have the most carefully refined raw materials, the finest equipment, the best maintenance possible, and our department strives ceaselessly to meet this requirement."

YOU WILL FIND NEW SUPPLY SOURCES LISTED EVERY MONTH IN PURCHASING'S CLASSIFIED SECTION SEE PAGE 316



...high octane gasoline

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● Creative men...engineers and engineering draftsmen...plan and build things to last. By the same token they look for instruments and equipment that will last. The tracing paper they draw on must be permanent. Their drawings must serve as lasting records. They may even have to use these same drawings years later to make new reproductions.

For 80 years there has been a lasting partnership between Keuffel & Esser Co. equipment and materials and the engineers and draftsmen of America. This partnership has been so general, that there is scarcely an engineering or construction project but what K & E products have played their part in it.

One of these products is ALBANENE* Tracing Paper. Its 100% pure white rag fibers are stabilized and transparentized with Albanite, a K & E synthetic solid. ALBANENE is permanent. Free from oils, it cannot "bleed" nor lose its transparency with time. For complete details, write to your nearest K & E distributor or to Keuffel & Esser Co., Hoboken, N. J.

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INGOT BRASS AND BRONZE OCTOBER SHIPMENTS

The combined volume of shipments of Ingot Brass and Bronze for October, 1947 is 22,806 tons as compared with 31,461 tons shipped in October, 1946, according to the Ingot Brass & Bronze Industry, 308 W. Washington Street, Chicago, Ill. It is believed this total figure represents in excess of 95 percent of the deliveries of the entire industry.

	1947	*1946*
January	27,841 tons	29,196 tons
February	24,686 tons	24,580 tons
March	27,477 tons	27,176 tons
April	24,577 tons	30,228 tons
May	19,525 tons	27,333 tons
June	16,929 tons	31,349 tons
July	16,728 tons	26,677 tons
August	18,589 tons	27,896 tons
September	19,025 tons	27,390 tons
October	22,806 tons	31,461 tons

STEEL AT 97.7% of Capacity

The operating rate of steel companies having 94% of the steel capacity of the industry was 97.7% of capacity for the week beginning December 8, compared with 97.7% the previous week, 96.9% the corresponding week a month ago and 69.8% a year ago. The operating rate is equivalent to 1,710,000 tons of steel ingots and castings, compared to 1,710,000 tons the previous week, 1,695,700 tons the corresponding week a month ago, and 1,230,100 tons a year ago.

HIGH HEAT RESISTANCE FEATURES SILICONE RUBBER

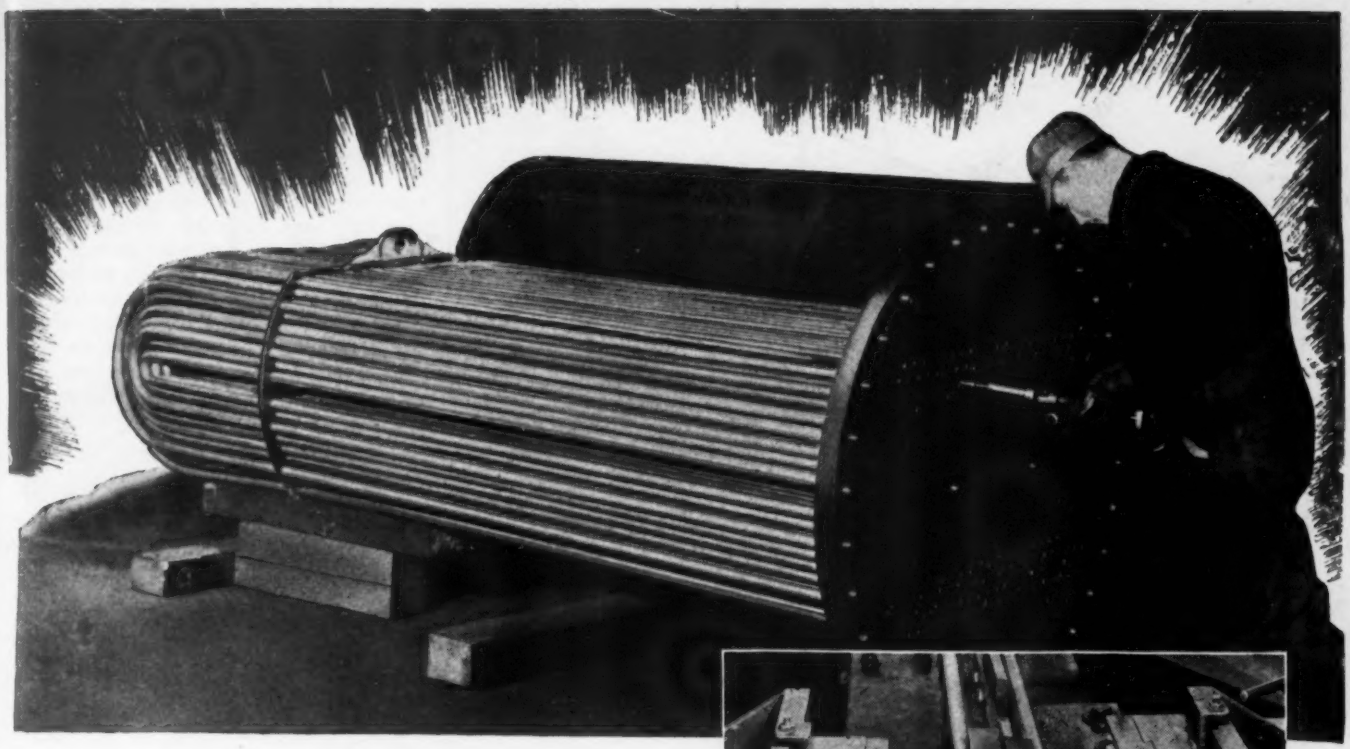
Silicone rubber, a new synthetic material, offers the design engineer a solution to many temperature problems because of its superiority to conventional rubbers under high heat, according to a technical paper given before The American Society of Mechanical Engineers at its annual meeting in Atlantic City. Many applications of this "brand new product" were named by the authors, George S. Irby, Jr., Wyman Goss, and James J. Pyle, all of the General Electric plastics laboratory at Pittsfield, Mass.

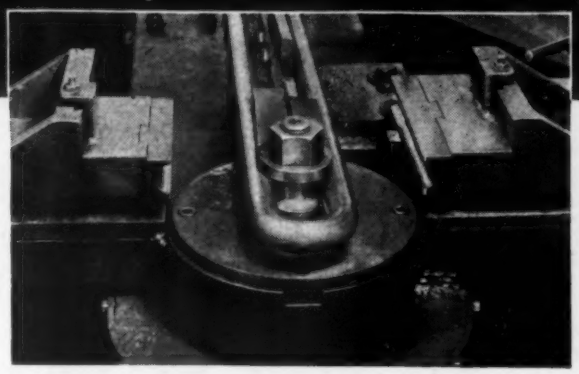
Potential industrial uses include gaskets for airplane engines, including jet engines, for Diesels; for drying ovens, and as oil seals; coating for wire and cable; for valves in electrical hot water heaters; and combined with glass cloth to form wrapping tape for electrical coils.

Silicone rubber is produced by compounding a silicone gum with suitable fillers and then vulcanizing or "cross-linking" the compounded rubber stock. The gum is produced commercially by two different chemical processes. The molecular structure of the silicone gum, which differs from that of natural rubber, gives it unique properties of thermal stability. The fillers used to produce the compounded rubber stocks include calcium carbonate, lithopane, titania and various silica fillers.

Silicone rubber shows its temperature

(*Please turn to page* 286)





they bend this stainless tube with flowers

Note the unusually tight return bends in this heating coil unit. The tubes are tough, corrosion resistant stainless steel, yet the inside bend is only 1½" mean radius—on a 1¼" O.D. x 16 ga. tube!

It wasn't done without difficulty. The tube is bent on an automatic machine with ball-type mandrel. Trouble was, the ball, after only a few bends, picked up a heavy burr. Then, on a tight return, the tubes would invariably chatter, sometimes break. Worse yet, constant redressing of the ball reduced its size—on larger bends, the extra clearance made tubes wrinkle.

Production was at a standstill, until a Frasse engineer noticed that the mandrel lubricant was being forced out by the extreme pressure. From a nearby drugstore, he took "flowers" of sulphur, mixed it with auto grease in proportion, and thinned the mixture* down with machine oil to the consistency of soft butter. This was rubbed well into the mandrel surface, then applied as a heavy coating. Tubes were bent to all radii without further trouble.

Frasse, with its wide range of shapes, grades and sizes, is an excellent source for your stainless steel. More than that, Frasse knows how to help you in stainless applications. Call us. *Peter A. Frasse and Co., Inc., 17 Grand Street, New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Avenue, Philadelphia 29, Pa. (Radcliff 5-7100) • 50 Exchange Street, Buffalo 3, N.Y. (Washington 2000) • 157 Richmond Avenue, Syracuse 4, N. Y. (Syracuse 6-2103) Jersey City • Hartford • Rochester • Baltimore*

FRASSE *for Stainless Steels and Tubing*

**Details for mixing this lubricant furnished on request. Write us.*

bars
sheets
plates
strip
angles
tube
pipe
fittings
wire

(*Continued from page* 284)

stability by not only retaining its flexibility, resiliency and surface hardness over a range of temperature from (—) 70 degrees F. to (+) 500 degrees F., but also over long periods of heat aging. In addition, its resistance to oxidation, low compression set, and good electrical properties are favorable factors in its many applications, it was stated. The limitations of the material can be largely overcome by proper mechanical design.

Since the properties of silicone rubber do not match those of natural or synthetic rubber at room temperature, the authors warned that "misconceptions of this material will arise if it is merely substituted for conventional rubber in existing designs."

However, design problems are simplified because fabrication of finished parts from the compounded silicone stocks can be accomplished in many ways, said the G.E. engineers. Techniques of molding extrusion, wire coating, laminating, cloth coating and bonding have been worked out successfully.

Suitable for Gaskets

Industrial uses to which the new product may be put are varied. Among these is its use for gaskets and packings. Its flexibility and long life at high temperatures make it especially suitable for gaskets where hot air under pressure is being transferred.

In this application, designs were proved successful in a 16 cylinder Diesel engine where operating conditions were 300 degrees F. and 15 psi air pressure. The heat aging of the silicone rubber in this case eliminated frequent replacement of the gasket.

In an early model aircraft turbo supercharger, a large "O" ring gasket was necessary for proper sealing action. An extruded silicone rubber rod bonded at the ends to form an "O" ring provided successful gasketing action. Operating conditions were 400 degrees F.

Used on Jet Engine

An "O" ring design of silicone rubber provided an effective oil and air vapor seal on the TG-180 jet engine. The temperature at the point of seal was 350 degrees F. to 400 degrees F. No swelling was observed from the effects of the oil vapor and the gasket could be reused.

Another use was in a drying oven where a large area had to be sealed. The temperature was above 300 degrees F. and the air contained several solvents. A large "O" ring gasket gave effective sealing.

V-rings or chevron packings can be molded from silicone rubber stock to increase the operating temperature of oil seals, the paper said. A seal was provided around a high speed shaft where oil temperature was between 300 and 400 degrees F.

One quality of the new material is that it has no tendency to stick or adhere to metallic or non-metallic surfaces. In the discharge valve seat of an electric hot water heater, high temperatures

(*Please turn to page* 288)

(*Continued from page* 286)

and no adhesion were the problems. A silicone rubber valve met both requirements.

Coating for Wire and Cable

The coating of wire and cable with silicone rubber has been under investigation for some time. Silicone coated wire can now be produced, and has been used on motor lead wires and electrical cable where temperature was a problem. Glass braid can be woven over the rubber coated wire to improve the abrasion resistance.

Glass cloth, coated with silicone rubber, resulted in a flexible rubberized cloth used as insulation wrapping tape for electrical coils. Laminations or reinforced sheeting over one-eighth of an inch thick can be produced by bonding together alternate layers of rubber and cloth. By this means tensile strengths of 2000-3000 pounds per square inch, and tear strengths of 200-300 pounds per inch are obtained.

Bonding of the rubber to itself, glass, or metal can be accomplished with the use of a newly developed adhesive, the paper said.

DEVELOPS HIGH AMPERAGE SURGES ON LOW POWER LINES

New power system developed by the Progressive Welder Company of Detroit is designed to take advantage of the fact that the enormous currents required in resistance welding, for instance, are not steady but are being continuously interrupted, and to deliver as much as 50,000 amperes of direct current. The new system employs an ordinary 15 or 25 horsepower motor to drive a low-voltage generator to which is attached an extremely heavy flywheel.

What the device does is to take a small amount of power from an ordinary electric supply line to run the 3-phase 15 hp motor and store this energy in the rapidly spinning flywheel. When the heavy load is applied, as in resistance welding, the generator—instead of stalling its drive motor under the overload—is kept turning by the energy of the flywheel, re-converting the mechanical energy in the flywheel back into electrical current of the high intensity required. While this occurs the flywheel slows down slightly. As soon as the load is cut off again, the motor speeds up the flywheel, restoring the energy consumed.

It is stated that in operation at the National Metals Exposition in Chicago, driven by a 15 hp motor, and connected to a flash-welder on which two pieces of 1¼" diameter steel were welded together endwise, the slowing down of the flywheel was actually imperceptible to the ear, indicating the large amounts of power which can be stored in this manner for use as and when needed.

One of the devices that made possible the practical application of the power system is a simple new carbon pile switch capable of controlling and interrupting the enormous currents delivered by the generator.

YOU furnish the steel

If you can supply us with 12 to 24 gauge sheet steel, we will supply you pound for pound with any selection of Lyon standard products now in production.

Or, we will manufacture to your specifications, in Lyon production run quantities, assemblies, sub-assemblies, or parts in gauges No. 8 and lighter up to No. 30.

LYON will make the product

—AND YOU GET PROMPT DELIVERY

LYON METAL PRODUCTS, INCORPORATED

General Offices: 133 Monroe Avenue, Aurora, Illinois

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• Shelving	• Kitchen Cabinets	• Filing Cabinets	• Storage Cabinets	• Conveyors	• Tool Stands	• Flat Drawer Files	
• Lockers	• Display Equipment	• Cabinet Benches	• Bench Drawers	• Shop Boxes	• Service Carts	• Tool Trays	• Tool Boxes
• Wood Working Benches	• Hanging Cabinets	• Folding Chairs	• Work Benches	• Bar Racks	• Hopper Bins	• Desks	• Sorting Files
• Economy Locker Racks	• Welding Benches	• Drawing Tables	• Drawer Units	• Bin Units	• Parts Cases	• Stools	• Ironing Tables

Cutting Production Costs Through Materials Handling

Declaring that industry's greatest opportunities for cutting production cost lay in reducing the 30% of the production dollar now spent in wasteful "muscle

Thomas D. Parlon

methods'" of handling goods between successive stages of manufacture without adding one whit to product value, Thomas D. Parlon, associate director of field activities for the Yale & Towne Manufacturing Co., Philadelphia Division, at meeting of the A.S.T.E. in Boston, outlined 11 objectives to be gained through properly planned material handling systems, as follows:

(1) to move as much material at one time as is necessary to keep production machines working at full capacity.

(2) to eliminate the extra cost of needless rehandling of individual pieces. Rehandling can mushroom 10 tons per day into 1,000 tons per day.

(3) to avoid muscle moving, because it saps workers' energy, cuts down their productivity.

(4) to keep skilled, high-priced workers producing every minute on the job.

(5) to reduce the time consumed by workers in handling materials in process.

(6) to make it safer for workers, to safeguard material against damage.

(7) to release as many men as possible for productive work.

(8) to conserve storage space.

(9) to assure better inventory control.

(10) to permit effective use change.

(11) to help reduce demurrage charges by faster loading and unloading of trucks, railroad cars and vessels.

"If you do not now have a man whose direct responsibility is to keep an eagle eye on production flow in your plant", he said, "then appoint one. Some plants have found it expedient to establish a committee or department to gather all the necessary facts.

"After the analysis phase (and only thereafter) should the selection of material handling equipment be made. Probably no error in the application of material handling machinery is more common than the assumption that one type of equipment is best for all uses.

"Typical savings in moving a shipment of 100 tons by the use of palletized unit loads and power-driven fork trucks amount to 479 man-hours, according to estimates by Navy handling experts. Moving the loose cargo would require 682 man-hours as against 203 for the same cargo palletized. Approximately 77 pallet loads accommodate the same amount of goods that require 4080 separate packages when shipped loose.

"One man with a fork truck handling palletized material can unload a box car in 1½ hours. To do the job by hand formerly took four men a half day. In another case, 1,000 packages were moved 200 feet and stcked by a fork tuck in 0.4 hours. To do the job manually originally took 38.3 hours. A saving of nearly 38 hours.

"A western cannery that replaced muscle methods with fork trucks and pallets saved over $5,000 a year on a single operation—moving cases of canned goods from production to warehouse. Still another example is that of the battery manufacturer who combined fork trucks, palletized loads and roller skate (floor type) conveyors in its highway trailers to cut its loading time of a 12-ton trailer from 360 man-minutes per handling operation to a 46 man-minute operation—a saving of 87%"

DIRECTORY OF COMMERCIAL AND COLLEGE LABORATORIES

A complete listing of commercial and university testing and research laboratories throughout the country, together with indications of the type of commodities tested, has been compiled by the National Bureau of Standards. This pamphlet is now available from the Government Printing Office as NBS Miscellaneous Publication M187 entitled *Directory of Commercial and College Laboratories.*

As the principal agency of the Federal Government for research and testing in physics, mathematics, chemistry, and engineering, the Bureau makes tests and carries out investigations for other Government organizations. However, it does not make tests for private individuals if other laboratories can do the work with of present plant layout or improve it by the required accuracy. Since inquiries regarding such service are often received, this classified list was assembled to inform interested persons of the location of other testing facilities. It is expected that the directory will also be of value to the large number of purchasers who are not equipped to make their own acceptance tests and have therefore hesitated to buy on specifications.

Information is given concerning 220 commercial laboratories, with 80 branches or offices, and 189 college laboratories used for research and testing as well as instruction. Listings are arranged both geographically and alphabetically to facilitate the ready location of any laboratory. Miscellaneous Publication M187 may be obtained only from the Superintendent of Documents, Washington 25 D. C. at 30 cents per copy.

Which of these Characteristics do you Require?

These are but a few of the many Wissco steel specialty wires produced by Wickwire Spencer, whose ability to meet exacting specifications has been a tradition for over 125 years.

We can meet your requirements for high or low carbon steel specialty wire; round or shaped; in a wide variety of sizes, tempers, grades and finishes. Send your order or inquiry to Wickwire Spencer.

IN THESE WISSCO WIRES *Strength and Flexibility* ARE ESSENTIAL

WISSCO HOSE REINFORCING WIRE, Wissco Shaft Wire and Wissco Crimped Brush Wire, while differing in chemical and physical composition, are all high in tensile strength and are manufactured for specific applications.

THESE WISSCO WIRES ARE DESIGNED FOR *Severe Forming Operations*

WISSCO BINDING WIRE and Wissco Preformed Staple Wire must be of close tolerance and uniformity as to tensile strength, hardness, size and finish.

HERE'S A WISSCO WIRE IN WHICH *Workability* IS AN IMPORTANT FACTOR

WISSCO SPHEROIDIZED WIRE is dead soft and easy on your wire working machines. After fabrication it is of a suitable type of material for hardening.

IN THESE WISSCO WIRES *Precision* IS OF VITAL IMPORTANCE

WISSCO DENT SPACER WIRE and Wissco Card Wire are held to tolerances as close as one ten-thousandth of an inch . . . must also be uniform in temper and finish and, in case of card wire, must be very straight and uniformly tempered.

WISSCO *Wire*

A PRODUCT OF WICKWIRE SPENCER STEEL DIVISION · THE COLORADO FUEL AND IRON CORPORATION

WIRE SALES OFFICE—361 DELAWARE AVE., BUFFALO 2, N. Y.

EXECUTIVE OFFICE—500 FIFTH AVE., NEW YORK 18, N.Y. · SALES OFFICES—BOSTON·CHICAGO·DENVER·NEW YORK

PACIFIC COAST SUBSIDIARY—THE CALIFORNIA WIRE CLOTH CORP., OAKLAND 6, CAL.

CF&I

Economic Basis For Cash Discounts

(*Continued from page* 143)

"Of course it is not a gift", says another survey reply. "It is charged into the *cost of doing business,* but it brings in the money." This is a sound accounting viewpoint. We cannot lose sight of the fact, however, that the cost of doing business is necessarily reflected in product cost. The credit angle is stressed in many answers to the survey. "It depends on the nature of the business and the kind of customers you are selling" is the theme of much of the comment. One reply states that the practice is not particularly sound except "perhaps for a company doing business on limited capital and credit, who uses discount as a means of inducing customers to pay more promptly . . . net cash, 30 days, we think should be the common practice, *except in special cases.*"

Much of the current controversy centers around the question of whether the present tendency to abolish cash discounts is not in reality a hidden means of raising prices, and therefore a directly inflationary measure. If a substantial item has been eliminated from the cost of doing business, without a corresponding reduction in product cost and price, there would seem to be good reason for buyers to raise this question, supported by cost and price analysis. Is the unjustified laundry bill still in the expense account?

Our correspondent's request for further comment on the subject is an excellent suggestion. We shall welcome the opinions of our readers, pro or con.

* * *

MINIATURE DRY CELL BATTERY OF PLASTIC CONSTRUCTION

Laboratory experiments have been completed and production lines set up for a miniature dry cell battery of revolutionary new plastic construction, according to announcement by the Winchester Repeating Arms Co., and the Bond Electric Corp., New Haven, Conn. The firms are divisions of Olin Industries, Inc. The battery, which is for use in camera-type "personal" radios and in hearing aids, will be known as the "Olin" battery.

The start of production will culminate four years of research in a basically new type of construction for miniature batteries, according to W. S. Allen, sales manager. Further details of the battery, to be marketed under both the Winchester and the Bond labels, will be announced shortly.

PROBLEM IN *Flow Control?*

. . . the answer is—

POWELL *Valves*

Through the years of amazing growth and diversification of industry, problems in flow control have become increasingly numerous and more complex.

But in more than a century of specializing in making valves—and valves only—Powell has never failed to solve a problem as it has arisen.

Today there are Powell Valves—in Bronze, Iron, Steel and the widest range of corrosion-resistant metals and alloys ever used in making valves—to satisfy each and every known industrial flow control requirement. And, as a new problem presents itself, the answer will be—Powell Valves.

Fig. 560—200-pound Bronze Regrinding Horizontal Swing Check Valve with screwed ends, screwed-in cap and regrindable, renewable bronze disc.

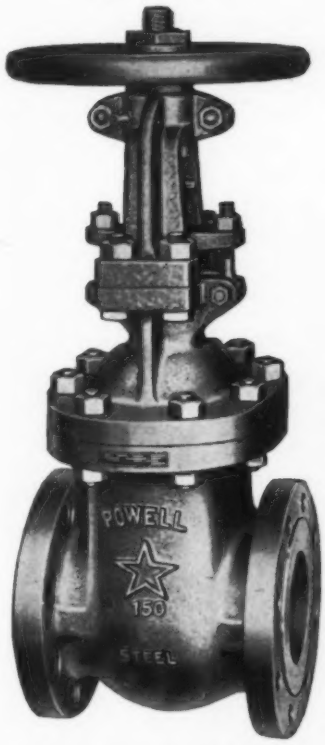


Fig. 1503—Class 150-pound Cast Steel Gate Valve. Has flanged ends, outside screw rising stem, bolted flanged yoke and taper wedge solid disc.

Fig. 301—Large 125-pound Iron Body Bronze Mounted Globe Valve with outside screw rising stem, bolted flanged yoke, renewable bronze seat ring with guide and renewable composition disc.

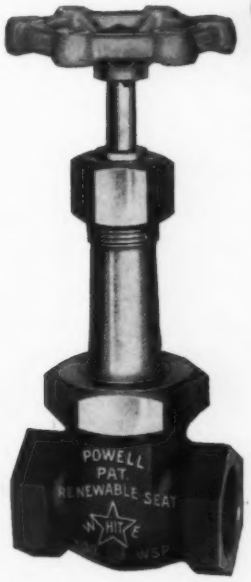


Fig. 1375 — 200-pound Bronze Gate Valve with screwed ends, inside screw rising stem, union bonnet and renewable, wear-resisting "Powellium" nickel-bronze seat rings and disc.

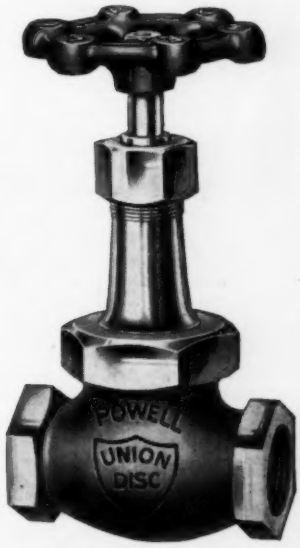


Fig. 150—150-pound Bronze Globe Valve with screwed ends, union bonnet and renewable composition disc.

The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

Another Year of Opportunity

(*Continued from page* 89)

in 1947, so how can we expect them to be 100% right in 1948?

However, we must not pass up any possible opportunity to get all the information we can, and then analyze our own companies' position to chart our buying course for the coming year. We must take into consideration our companies' objectives, our production schedules and sales estimates, and plan material purchases accordingly.

It will pay all of us to review the Standards of Purchasing Practice that were established many years ago by N.A.P.A., and still stand as the summary of sound policy. If we live up to those standards, they will help us a great deal in this coming year.

We must strive constantly for closer cooperation with the heads of other departments in our organization, letting them know what materials are on the short side, where delays may be encountered, and which materials have eased up. A mutual understanding of such situations helps maintain continuous production without interruptions for lack of scarce materials.

Many purchasing departments have been too lax in making reports to management. During times like these, management is willing and eager to help with advice and counsel. They can be a big help where substitution of materials becomes necessary. And management needs the information that purchasing is in the best position to furnish.

Management realizes that purchasing agents who have been able to secure the right material at the right time and at the right price, have done so by building up a sound relationship with the right kind of suppliers. That is the kind of a job management expects us to do.

Purchasing today can also do something about the inflationary forces that are so much on everyone's mind. Too many purchasing agents still retain the wartime philosophy that their prime motive is getting material, without regard for cost. A good purchasing agent must get value for the money he spends. By getting a dollar value for every dollar spent, he will be doing his part in price control—and I mean the kind of price control that is regulated by natural economic law.

Better purchase values mean better values for our customers, and better products. When competition

(*Please turn to page* 296)

Another Year of Opportunity

(*Continued from page* 294)

returns to normal, better purchase values mean more business for our companies. This in turn means a better profit. We can take satisfaction in our part in helping to earn that profit.

What Percentage Gain or Loss?

(*Continued from page* 111)

Perhaps you are dealing in figures or quantities that do not fall within the 1 to 100 scale. For example, the problem in the preceding paragraph might involve $1,500 and $750. The same cross line is used, arriving at the same answer. You have merely to remember to add the same number of ciphers on both the left and right hand scales, or subtract the same number of ciphers, as the case may be. The proportion is the important factor.

Give the chart a thorough tryout. Use it whenever you have a problem of percentage gain or loss, and you will soon become adept in its application. It is a time saver. Or, if you still prefer to do your figuring by longhand, this chart will come in handy to check your figures for accuracy.

How Lamson & Sessions Buys

(*Continued from page* 105)

considered judgment of a number of executives. Participating in conferences on these important decisions are: the head of the engineering department, with his technical advisors; the General Superintendent; the Plant Manager; the Production Control Engineer; the President, who is a design engineer by profession, and the Director of Purchases.

The soundness of this method, and of the recommendations that come from it, is affirmed by the fact that the Executive Committee of the Board of Directors approves about 90% of these decisions, after study and investigation.

In the manufacture of nuts and bolts, one hundred tons of steel produce approximately 35 tons of scrap.

(*Please turn to page* 299)

Our New England reporter snaps Mr. H. C. Allington, Gen. Sales Mgr. of The Colorado Fuel & Iron Corp., Wickwire Spencer Div., (right) discussing springs with Mr. G. T. Zahnke, P. A. of Wallace Barnes Company, Div. of Associated Spring Corp.

"The P.A. is our most important contact"...

SAYS Mr. H. C. Allington, General Sales Manager of Wickwire Spencer. "We consider the P. A. 'spokesman' for the 'buying team' in all larger companies. He is the man who is most interested in the available sources of supply that can meet his company's needs. So we naturally make sure our salesmen get our story directly to him — no relying on some 'friend Joe' in the plant to 'specify' our product."

Mr. Allington's recognition of the importance of getting his sales story to the P.A. comes from many years experience in selling industrial products. His company backs him up in this policy with substantial advertising space in *Purchasing*.

What could be sounder than to talk to the P.A. *directly* in his *own* magazine? *Purchasing* is devoted to the P.A.'s own job interest. It is edited for him—and him alone. It goes to him direct — catches his immediate attention — stays with him for reference and use.

That's why *Purchasing* heads the list on so many well-balanced trade paper schedules. It's the SURE way . . . the LOW COST way of getting your product story before P.A.'s everywhere — of contacting the most important buying group in U. S. industry. Get the whole story on what *Purchasing* can do for you. Write *PURCHASING*, 205 E. 42nd St., New York 17. Offices in Chicago, Cleveland and Los Angeles.

PURCHASING

ABC ABP

A CONOVER-MAST PUBLICATION

THE NATIONAL MAGAZINE FOR PURCHASING EXECUTIVES

How Lamson & Sessions Buys

(*Continued from page 296*)

This condition raises the problem of disposing of the scrap regularly, both on account of the space it occupies and getting back a fair return on the raw material waste.

The general policy regarding scrap is not to store up any large accumulation in order to speculate on a rise in price. Scrap is regarded as a by-product. If it brings a fair price over a year's time, the transaction is considered satisfactory.

Scrap is piled according to the grade and size of the material, with special piles for spoiled nuts and bolts, short turnings, and long turnings, since these different classifications bring different prices per ton and segregation insures the maximum return. Scrap sales are made through reliable brokers, and are always on an f.o.b. plant basis, with the buyer assuming responsibility.

Purchasing With A Purpose

(*Continued from page 122*)

tioned job analysis and personnel rating. A fair understanding of what a job involves and the type of personnel needed to adequately perform that work, helps you to decide what an adequate wage should be. Secondly, there is the human reward, the praise for a job well done. Sometimes this reward means more than wages. For yourself, the very knowledge that your organization is efficiently and effectively doing a job gives you an intangible reward — the satisfaction of a job well done.

There is another type of reward that should be considered. That is the knowledge that by operating your department efficiently, you are contributing to the success of other departments. To make the work of the purchasing department of value to the other departments in the organization, there is a concluding subject that I would like to mention just briefly, that is the subject of management reports. It ties in very closely with Harrington Emerson's twelfth principle and is a subject which today should be considered very carefully by purchasing departments. Purchasing departments, as specialists in vendor relations, are in a position to know what is available in the markets of the world and what these materials and serv-

(*Please turn to page 300*)

Purchasing With a Purpose

(*Continued from page 299*)

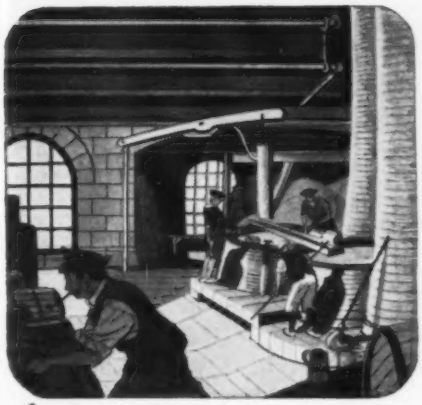
ices should cost and do to produce better materials for less money. They know too how these materials and services can benefit their own organization. You in the purchasing department who make contacts every day with other departments in your own organizations are more familiar with all that goes on, the demands of the various departments, the requirements and services. Too often in the past the purchasing department with its pressure of work and shortage of personnel has given little thought to combining the knowledge which you have as a result of your work, so it can be passed on to others that might make good use of it. It is for this reason that management reports should be considered carefully and thoroughly by purchasing departments.

Through such reports, we can apprise others in management of purchasing activities, apprise them of the problems involved in purchasing, and point out certain courses of action as a result of situations arising outside of the purchasing department. Changes can be suggested that will aid your own organization. For example, review programs of preventive maintenance that will reduce the requisitions received in purchasing, particularly the rush requisitions. Establish stockrooms to better control inventory and reduce rush and emergency requisitions. In one case, such a program reduced the requisitions received by one-third, thereby reducing the clerical work one-third even though the total purchases continued to increase. Long range programs can be considered. Substitute materials can be proposed, or new uses of materials already purchased can be pointed out. Policy changes and budget changes can be suggested in such a report.

A management report should be issued at some stated period. Awkward situations can be handled in a normal way instead of making an exception of each situation. Incidentally, as a byproduct of the purchasing agent's preparation of such a report, he finds himself taking a keener interest in his work and he finds that he has something with which to check back on past suggestions as well as a summary record of what has happened.

The purchasing agent who uses Harrington Emerson's twelve principles of efficiency as a basis for

(*Please turn to page 302*)

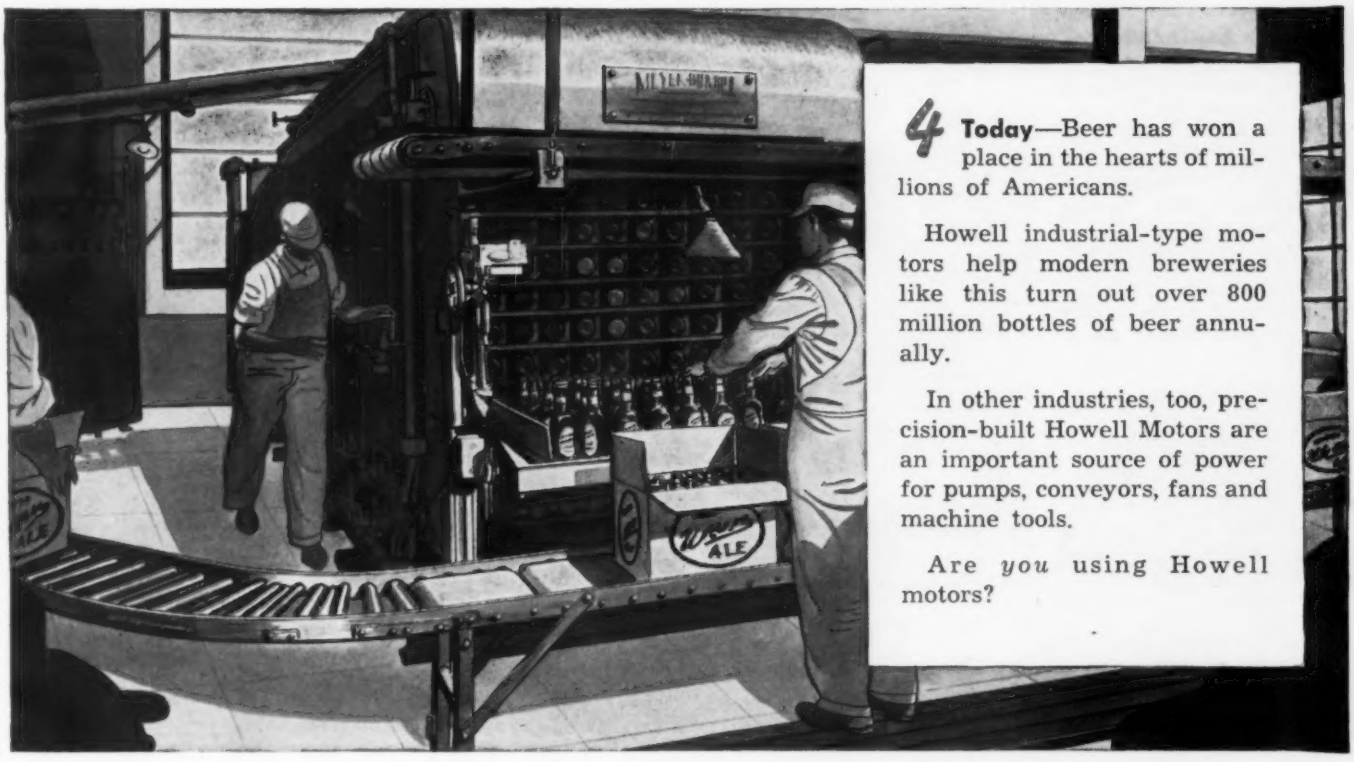


1 **1633**—First brewery in America was built in New York City near what is now Wall Street. Our Founding Fathers fostered this "beverage of moderation" by low taxes on domestic beer.

2 **1842**—Lager beer arrived and for years demand far exceeded supply. Improved methods of bottling, capping and handling that were to make brewing "big business" were still to come.

3 **1915**—Howell industrial-type "Red Band" motors appeared. The advent of low-cost electric power made modern bottling possible, upped beer production, cut costs. Brewing boomed!

NOW . . . BEER BELONGS



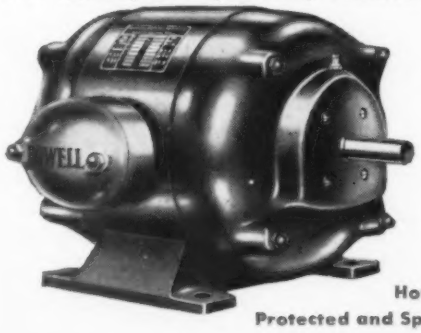
4 **Today**—Beer has won a place in the hearts of millions of Americans.

Howell industrial-type motors help modern breweries like this turn out over 800 million bottles of beer annually.

In other industries, too, precision-built Howell Motors are an important source of power for pumps, conveyors, fans and machine tools.

Are *you* using Howell motors?

Here's another precision-built Howell Motor . . . industrial type with copper or bronze bar rotors . . . specially insulated . . . statically and dynamically balanced.



Howell
Protected and Splash-proof Motors

HOWELL MOTORS

HOWELL ELECTRIC MOTORS CO., HOWELL, MICH.

Manufacturers of Quality Industrial Type Motors Since 1915

Purchasing With a Purpose

(*Continued from page* 300)

measuring the effectiveness of his department is lifting his organization from the errand boy type of purchasing to the executive type of purchasing. He is purchasing with a purpose and contributing materially to the success of his organization. The purchasing agent, as a specialist in vendor relations, is a partner of management, and as a purchasing agent his job is just as big as he wants to make it.

* * *

1948 Steel Production

(*Continued from page* 114)

shipments to machinery manufacturers represent 8.2% compared with 5.0 in 1940. In the other direction, the automotive industry is receiving 31.5% as against 37.5% in 1940. The export market is receiving 2.8% of the 1947 total as against 7.5% in 1940.

The large-scale expansion and improvement programs of steel companies costing a total of about one billion dollars, equal to nearly one-fifth of the capitalization of the industry are being pushed to completion as rapidly as possible. Some of the work has been hampered by unavoidable delays in deliveries of equipment. These programs are still growing. The latest estimates of the additions are as follows:

At least 3,000,000 tons per year in improved and expanded steel ingot capacity. At the start of 1947 total annual capacity was 91,241,000 tons.

Approximately 3,000,000 tons per year in improved and expanded pig iron capacity. At the beginning of 1947 total capacity was 65,709,000 tons per year.

About 3,000,000 tons per year in improved and expanded coke capacity. At the start of 1947 total annual coke capacity of iron and steel companies was 60,280,000 tons.

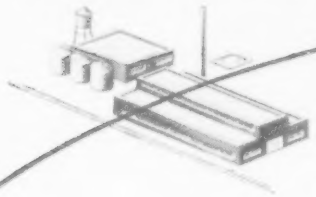
More than 3,000,000 tons per year in improved and expanded sheet and strip capacity. Total capacity cannot be stated on the same basis as the above figures. Production in 1947 was approximately 18,000,000 tons.

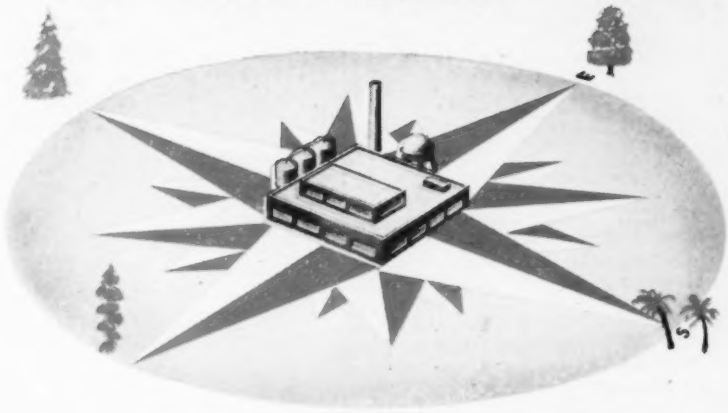
Substantial increases are scheduled for other finished steel products and improvements in addition to those listed above.

(*Please turn to page* 304)

OUR PLANTS BLOOM THE YEAR 'ROUND

...IN YOUR BACK YARD!





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General Chemical Producing Works include:

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Baltimore, Md.
BATON ROUGE WORKS
Baton Rouge, La.
BAY POINT WORKS
San Francisco (Port Chicago), Calif.
BOSTON WORKS
Medford, Mass.
BUFFALO WORKS
Buffalo, N. Y.
CALUMET WORKS
Chicago (Hegewisch), Ill.
CAMDEN WORKS
Camden, N. J.
CHILLICOTHE WORKS
Chillicothe, Ohio
DELAWARE WORKS
North Claymont, Del.
DEMING WORKS
Deming, N. M.
DENVER WORKS
Denver, Colo.
DETROIT WORKS
Detroit (River Rouge), Mich.
EAST ST. LOUIS WORKS
East St. Louis, Ill.
EL SEGUNDO WORKS
Los Angeles (El Segundo), Calif.
FRONT ROYAL WORKS
Front Royal, Va.
HUDSON RIVER WORKS
Edgewater, N. J.
JACKSONVILLE WORKS
Jacksonville, Fla.
JOHNSONBURG WORKS
Johnsonburg, Pa.
KALAMAZOO WORKS
Kalamazoo, Mich.
MENASHA WORKS*
Menasha, Wisc.
MIDDLETOWN WORKS
Middletown, Ohio
MONROE WORKS
Monroe, La.
NATIONAL WORKS
Cleveland, Ohio
NEWELL WORKS
Newell, Pa.
NEW ORLEANS WORKS
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PULASKI WORKS
Pulaski, Va.
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At every point in the compass . . . wherever Industry is centered . . . there is a General Chemical producing works or distributing station serving the territory. To supply Industry's requirements across the country, General Chemical has 33 major producing locations from which pour a steady stream of essential chemicals.

These include acids—alums—sodium compounds—fluorine derivatives—other heavy chemicals—as well as reagents, fine and pharmaceutic chemicals. Thus, coast to coast, a full flow of this broad and varied range of products, so necessary to peak production, is assured.

That is why . . . in every branch of Industry everywhere . . . the choice is General Chemical *first* in "Basic Chemicals for American Industry."

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GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
Offices Serving Industry from Coast to Coast

1948 Steel Production

(*Continued from page 302*)

The percentage growth of the steel industry has always exceeded the percentage growth of the population of continental United States. Steel ingot capacity rose 134% from 1910 to 1947, while the population of the country increased 55%. In the future the population of the nation will grow more slowly, according to population experts.

The steel companies' current expansion programs are among the largest undertaken when war was neither in progress nor imminent.

A number of records were set in 1947 for shipments of specific steel products. On the basis of tonnages shipped through ten months of the year, the records appeared likely to be established in cold rolled sheet and strip, electrical and enameling sheet, electrolytic tin plate, ordinary black plate, electric weld pipe and tubes, drawn wire, woven wire fence, bale ties, rails and track spikes.

The combined shipments of all types of wire products will also comprise a new high level in 1947. Shipments of nails should approximate 815,000 tons, less than 4% below the war peak of 845,000 tons in 1942. Shipments of hot rolled carbon bars are likely to equal the 1943 war record of 6,300,000 tons, while combined shipments of pipe and tubes at close to 6,000,000 net tons will be slightly below the wartime peak of 6,131,000 tons set in 1944. Shipments of bale ties for the first five months of 1947 were 51,375 tons, close to the entire output for 1939.

The one billion dollar expansion program of the industry will enable the production of increased amounts of virtually all types of finished steel.

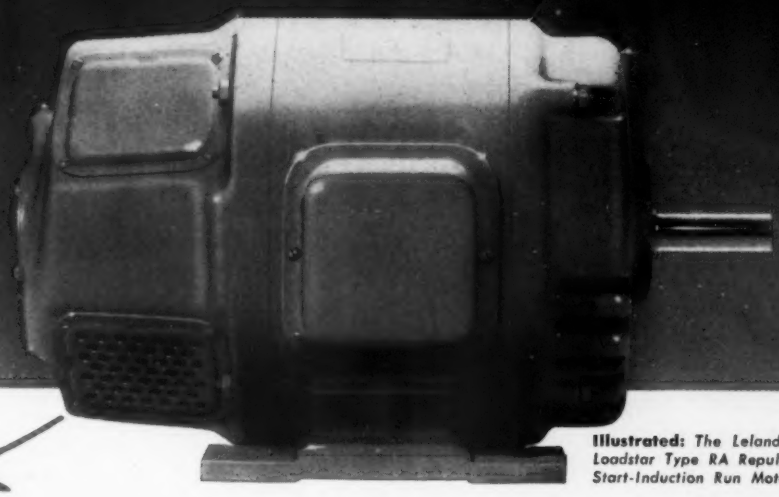
* * *

CHICAGO TECHNICAL CONFERENCE ANNUAL PRODUCTION SHOW

Held in conjunction with the annual Chicago Production Show, the Chicago Technical Conference, scheduled for March 22-24 at the Stevens Hotel, will lay emphasis in non-technical, every-day language on the new discoveries, new processes, new techniques, and new materials of recent origin.

The Conference will be sponsored by the 51 scientific, engineering and technological societies affiliated with the Chicago Technical Societies Council. A registration of 10,000 is anticipated. It will be open to the general public. Further details are available from Lewis M. Glassner, 35 E. Wacker Drive, Chicago, Ill.

Hitch your Product to a Leland LOADSTAR



Illustrated: *The Leland Loadstar Type RA Repulsion Start-Induction Run Motor.*

PICKUP! *Higher starting torque per ampere of starting current characterizes Type RA Repulsion start-induction run motors.*

QUIET! *Exceptionally close tolerances eliminate vibration, prolong motor life. Engineered throughout for smooth, silent operation under most exacting conditions.*

SELECTION! *⅓ to 5 HP. Types—ball bearing and sleeve bearing; open and enclosed; explosion-proof; horizontal and vertical.*

TOGETHER, they'll go far. If your product, too, stands for down-to-earth engineering aimed at standards raised sky-high, then you'll find your performance values enhanced by similar characteristics in the Leland Loadstar. Sales-wise, too, you'll find the nameplate on your Loadstar a potent business beacon. Your customers who have long known Leland, find in Leland Loadstars the coolest-running, sweetest Lelands yet . . . Specify Loadstar for HP per cubic inch as high as any—for HP per pound higher than most. *Write for descriptive literature.*

THE LELAND ELECTRIC COMPANY, DAYTON 1, OHIO. ***Branches in all principal cities.***

LELAND LOADSTAR MOTORS

MOTORS OF ALL TYPES—ENGINEERED TO INDUSTRY'S SPECIFIC NEEDS

What's New?

• •

HERE'S an easy way for you to keep abreast of NEW developments in materials, equipment, finishes and processes:

Every month you will find listed in the "Ask Purch" Section — Pages 14 to 20, incl., from 75 to 100 new pieces of manufacturers' literature.

MAKE your selection of the literature of interest to you, and which you may need to bring your catalog files up to date.

And, check the numbers on the post-paid postcards on Pages 19 and 20. "Purch" will see that the material is sent to you without cost.

• •

Ask Purch

LETTERS . . .

ORDER ACKNOWLEDGMENT NOT ALWAYS A LEGAL NECESSITY

I have been following with interest your articles on the legal aspects of purchasing. It has been clearly stated that the basis of all contracts is a "meeting of minds". However, most attention has been focussed on an order given by a buyer, followed by the seller's acceptance as being the formation of a contract.

Is not this formation just as valid in a seller's quotation, being the offer of sale, and the purchaser's order being the acceptance, with no additional acceptance of the order by the seller being necessary?

W. O. Kjeldsen, Purchasing Agent
Union Brass & Metal Mfg. Co.
501 West Lawson Avenue
St. Paul 3, Minnesota

You are correct in making the point that a seller's quotation may constitute the offer, and the purchase order based on such quotation is the acceptance, in which case no further acknowledgment is necessary to make a binding contract. There are a few important limitations to the application of this principle, however. The seller's quotation must be specific, addressed to the prospective purchaser (company). The courts have repeatedly ruled that catalogs, circulars, and advertisements of general circulation do not have the legal force of an offer. Furthermore, unless specifically authorized to do so, or unless the authorization is indicated by precedent in previous transactions, a salesman does not have the authority to commit his company by making a specific offer. Many companies make a point of this by printing on their sales order forms a notation to the effect that the order is "subject to acceptance at the main office". An exception to this is when the sales representative has the title of "Sales Manager" or some similar designation indicating that he has the broader authority in his company organization. Consequently, if the purchasing agent has a definite proposal from the seller and relies on his purchase order to serve as acceptance, binding the seller to a sales agreement, it is good policy to include a reference to the proposal in the purchase order, such as "per your quotation of (date)" or the like.
—Ed.

WELCOME BACK

I just received a "heartrending" letter from your Subscription Department regarding my cancellation and thought it was time for me to drop you a line anyway.

You might tell your Subscription Department, that the reason for not renewing my subscription is that UNRRA is due to wind up in December.

My work here in the Procurement Section has been very interesting and many people have enjoyed and benefited a great deal, I am sure, by the magazine. When I come back to your fair city, espicially now since I know I am considered "one of the family" I surely will drop in and see you.

Bernice Wood
UNRRA
Embankment Building
Shanghai

It will be good to see you, Bernice.
—Ed.

BOUQUET FROM AVID READER

This department is an avid follower of your publication and your many articles are read with interest. As a Purchasing Department doing over a $50,000,000 a year volume, we find it most pertinent in our day-to-day operations.

C. R. Skinner
Ass't. to Purch. Manager
Pratt & Whitney Aircraft
East Hartford 8, Connecticut

NIGP ORCHID

I think Purchasing gave very splendid coverage to the conference of the National Institute for Governmental Purchasing.

Wm. J. Burke, Purchasing Agent
City of Corpus Christi
Corpus Christi, Texas

HOSANNAH FOR HENDERSON

The article on "Inventory Control" by B. D. Henderson appearing in your November issue is one of the best on this subject that I have read. It is clear and direct, and points the way to a very practical program on a subject that should be of vital interest to every purchasing agent.

A. H. Reynolds, Jr., Purchasing Agent
Leeds & Northrup Company
4901 Stenton Avenue
Philadelphia 44, Pa.

THEY LIKE IT

Believe this magazine is read more than any of about twenty we subscribe to.

G. L. Hoody, Dir. of Pur.
Universal Electric Co.
Owosso, Michigan

Excellent and very interesting.

J. C. Davis, Purchasing Agent
Reliance Elec. & Engr. Company
Cleveland 10, Ohio

The magazine PURCHASING is one of the most interesting and easily read and understood publications that I have had any experience with.

E. B. Becker, Purchasing Agent
Westvaco Chlorine Prods. Co.
Newark, California

Your magazine is the only "take home" literature in our purchasing department.

R. T. Johnson, Purchasing Agent
Electra Mfg. Co.
Kansas City 6, Missouri

The writer might paraphrase the words of a well known automotive manufacturer and say that "when better magazines are made PURCHASING will make them".

F. H. Hollister, Purchasing Agent
Ingersoll-Rand Company
Painted Post, New York

An excellent magazine.

H. A. Haynes, Purchasing Agent
Pittsburgh Plate Glass Company
Columbia Chemical Company
Barberton, Ohio

I find your magazine a monthly "must".

M. D. Sesnick
General Electric Co.
Hoboken, New Jersey

I consider your magazine one of the most outstanding trade magazines in the U. S. A.

L. Neumann
Permoflux Corp.
Glendale 5, Calif.

I find the magazine very informative and valuable in my work.

S. J. Snegal, Purchasing Agent
The Silex Company
Hartford 1, Conn.

PURCHASING DEPARTMENT LAYOUT

I am curious to know if in your past publications any article or reference has been made to the "ideal or perfect" purchasing building, taking into consideration the flow of intra-department, inter-department, and transient personnel, and the office layout, such as private interview and conference rooms, receptionist, etc.

B. V. Dixon
16020 Humphry Drive
Route #4
Birmingham, Michigan

We have from time to time had articles and illustrations on this subject, not from the angle of the "ideal" layout, but rather in the presentation of good examples from actual practice. Specific examples of this nature include:

Globe Steel Tubes Co. (March 1944)
Minnesota Mining & Mfg. Co. (July, 1941)
All-Steel-Equip. Co. (November, 1940)
Westinghouse Electric Corp. (October, 1940)
Carter Carburetor Div., ACF (September, 1940)

Chapter XXXI of the textbook "Purchasing" (Prentice-Hall, 1947) is devoted to the subject of layout and reception, and covers the subject rather comprehensively.—Ed.

CONTAINER TERMINOLOGY

May we ask your cooperation on the subject of container terminology? This letter is prompted by the headline on the item on pages 198-200 of your November issue. For your general information, a container is not a drum unless it is cylindrical.

The American Society of Testing Materials, Committee D-10, has adopted tentatively the following:

"Drum": A single-walled, cylindrical container made of metal, plywood or fibreboard, with a capacity of 132 gallons or less, for liquids, semiliquids, powders, etc.

Glenn Mather, Secretary
Fibre Drum Manufacturers Assn.
P. O. Box 1328, Grand Central Station
New York 17, New York

SPECIALISTS GET BETTER RESULTS

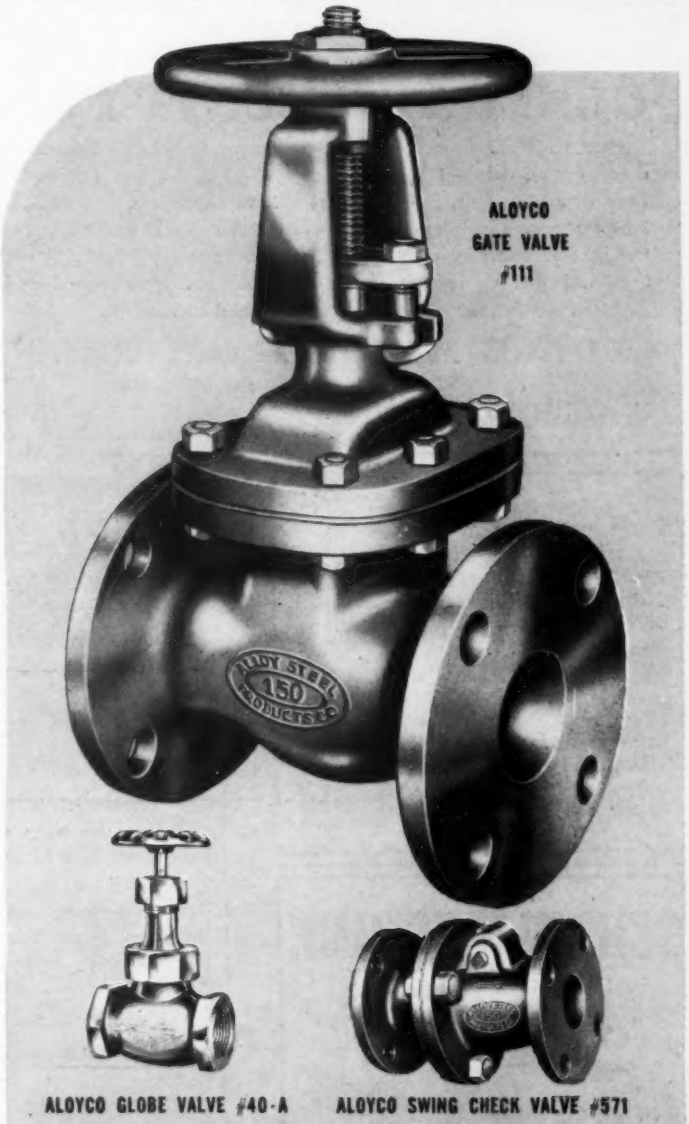
...in medicine and in VALVE MANUFACTURE

● The superiority of the specialist, in his branch of medicine, over the general practitioner, is widely recognized today. The same thing is true in the manufacture of corrosion-resistant valves.

This Company makes nothing but valves. And we confine our activities entirely to valves of stainless steels and other corrosion-resistant alloys. We are the only manufacturer who specializes to that extent.

A high degree of science is involved in the manufacture of successful corrosion-resistant valves. The chemistry of corrosion, the metallurgy of stainless steels and mechanical engineering in the correct design of such valves, are all included in this science. Such skills are not acquired in a day. We have been at it a long time. That is why leaders in the process industries come to Aloyco for advice on corrosion-resistant valves. You, too, will find it profitable to consult our metallurgical service on your requirements.

Aloyco's new catalog #47 tells the story of this specialization and gives full details of alloys, types and applications. Send for your copy on your letterhead.



ALOYCO GLOBE VALVE #40-A

ALOYCO SWING CHECK VALVE #571

ALOYCO

STAINLESS STEEL VALVES AND FITTINGS

GATE, GLOBE, Y, CHECK, TANK, SAMPLING AND V-PORT VALVES
SCREWED AND FLANGED FITTINGS

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GEORGE MUEHLEBACH BREWING CO.
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316 OAK STREET KANSAS CITY 6, MO.

FOR SALE

MOTOR PARTS — 1500 sets new Westinghouse 1/6 HP universal consisting of armatures, fields, fans, and brush rigging. Ideal for portable tools. A ten-tooth pinion is an integral part of the armature shaft.

GEARS—5600 small mitre, steel. 12 teeth; 20 pitch; 20° pressure angle; 11/64 face; ¼ bore; ½ hub diameter; 5/16 hub length. *Make an offer.*

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600 WEST JACKSON BLVD.
CHICAGO 6, ILLINOIS
Buyers of Surplus Steel Inventories
Thirty Years of Steel Service

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New Cut Stock Line Wanted

A national lumber manufacturer is entering the pine and fir cut stock field. Ample lumber supply.

Product and method of distribution have not been determined. If you have an outlet for semi-finished or finished cut stock, write Box 1152, *PURCHASING*, 205 E. 42nd St., New York 17, N. Y.

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Contract Manufacturers since 1914
METAL STAMPINGS
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HELP WANTED

WANTED — PURCHASING AGENT

An Understudy to General Purchasing Agent of an Industrial Corporation. Male. Age 30 to 40 preferred. Knowledge of Coal, Packaging and Machinery desirable. Write giving Age, Education, Experience and Salary to Box 1153, PURCHASING, 205 E. 42nd St., New York 17.

POSITIONS WANTED

EXPERIENCED BUYER, college grad, age 35, now with large electrical manufacturer, offers his training and experience to that concern which needs a capable Purchasing Agent. Box 1149, PURCHASING, 205 E. 42 St., N.Y.

PURCHASING AGENT, 39, with 10 yrs. technical purchasing experience in manufacturing, contracting and government. Experienced in organizing, planning, expediting and stock control. Engineering background. Box 1150, PURCHASING, 205 E. 42 St., N.Y. 17.

PURCHASING AGENT—47. Thirty years general construction experience; twenty-five years as field and central office Purchasing Agent (materials, rentals, subcontracts) including industrial and architectural buildings, power plants, dams, bridges, highways, residential, etc., in Northeastern section. Experience also includes construction field office management. Box 1146, PURCHASING, 205 E. 42 St., N.Y.

PURCHASING EXECUTIVE—Specialist in Printing, Paper and Office Supplies for past 17 years. Now in charge of 2 million dollar printing purchase program and staff of 30 for international organization. Knowledge of French and Spanish. Will locate anywhere. Box 1147, PURCHASING, 205 E. 42 St, N.Y.

IMMEDIATE SHIPMENT!

Wheelbarrows for foundry, coal, concrete, brick and general use. Write for complete details and prices.

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FOR SALE

Steel Parts Standard all Steel Conveyor, 30" wide; lengths 2 — 50 ft., 2 — 80 ft., 2 — 100 ft.; equipped with individual drives, cap. 100# per sq. ft. any speed up to 60 F.P.M.; motor data 3/60/220/440, nearly new. Available Immediately.

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TO B-P OR SAMPLE
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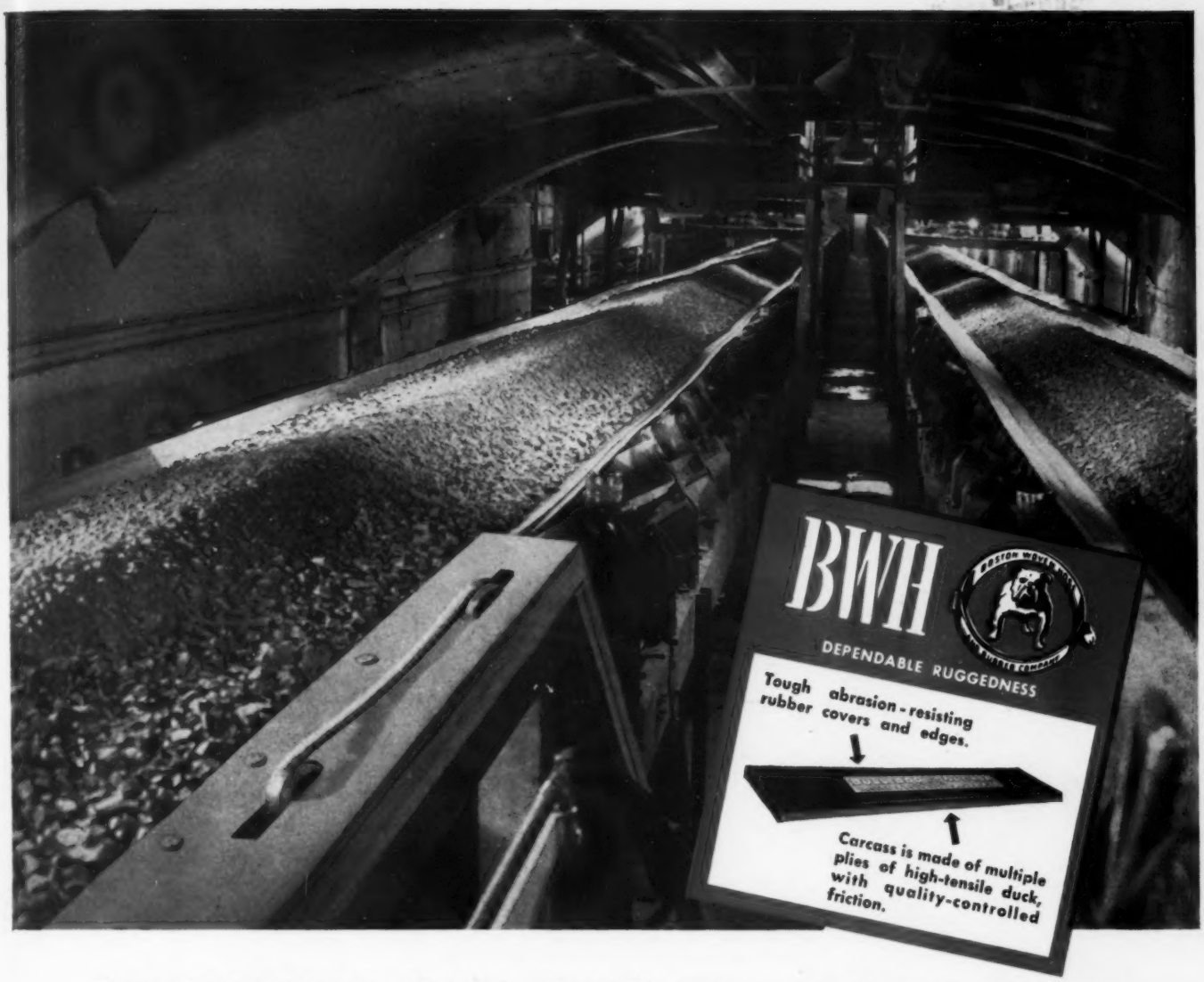

UNDERGROUND "TOUGHIES" SENT UP FOR 19 YEARS

Another top performance by a BWH product

19 years ago, in 1929, a leading copper concentrator needed a conveyor belt that could really "take it". Ponderous weights of copper ore had to be hauled from a primary crusher to the pulverizing mills. The belt had to resist cuts and tears from jagged rocks. And the cargo had to keep moving, week after week, at a minimum cost per ton.

It was a tough problem, but a Bull Dog Belt proved a highly satisfactory solution. In 12 years of steady operation, this husky belt carried more than 54 MILLION TONS! So when stepped-up production necessitated a replacement in 1941, another Bull Dog Belt was naturally specified.

Because Bull Dog Belts are made by the famous ROTOCURE process of continuous vulcanization, they are free from trouble spots caused by press overlaps. The carcass is made of multiple plies of duck with quality-controlled friction, and the cover is unusually tough and abrasion-resistant. Combined, these factors assure the resiliency essential to recovery from shock when "bruiser" loads come thundering in.

The new belt shown has been hard at work for over seven years, at the rate of 25 THOUSAND TONS OF COPPER PER DAY!

Records like these are common in the many industries where BWH products are used. Whatever your needs for mechanical rubber goods, look to BWH for dependable ruggedness — BWH distributors for dependable service.

HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems — we're specialists in solving them. Consult your nearest BWH distributor, or write directly to BWH.

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Distributors in all principal cities

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(*Continued from page* 318)

You'll be amazed at what can be made with Bundy Tubing!

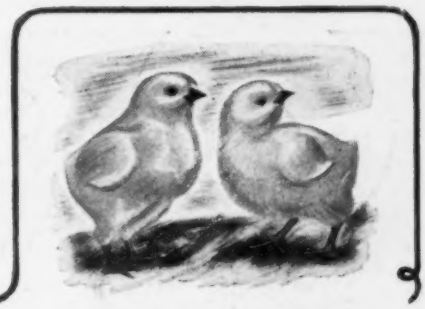
Whatever you make . . . refrigerators or stoves . . . camera tripods or chicken brooders . . .

Chances are, Bundyweld* Tubing can reduce costs, shorten production time and improve quality.

Want proof? Here it is. Here, too, are some red-hot new ideas on Bundyweld for wide-awake manufacturers.

1 **A cold** welcome's assured with Bundy Tubing in a refrigerator. Bundyweld is double-walled from a single strip. Result: thinner walls but equal strength, increased conductivity. That's why top refrigerators have used it from the start.

2 **A hot** welcome is in order when it comes to stoves. And hot it is in modern ranges using dependable, long-life Bundy *steel*. Here's a use for Bundyweld ductility, uniform tolerances and machineability that's right off the front burner.



3 **Even chickens** cry for it, since one ingenious designer specified Bundy Tubing to carry fuel oil in a new chicken brooder. Easy-to-fabricate Bundy Tubing is readily adapted to tricky turns, and stays strong when bent to special shapes.

4 **Shutter-bugs,** too, say Bundy clicks. They find Bundy Tubing makes good tripods . . . strong, yet lightweight—a steady base for cameras. Bundyweld, with its unique double wall, is right in focus for many structural applications.

5 **New uses** for Bundy Tubing keep popping up all over. Radiant heating, for example. Bundyweld offers faster heat conductivity, because walls are thinner with no sacrifice in strength. Bundyweld is ductile, too . . . fits many contours.

6 **Tricycles** or garden tools . . . thousands of new uses for Bundy steel, Monel and nickel tubing await application by alert manufacturers. Tubing may help harness your idea more profitably. No other tubing offers Bundyweld's exclusive features.

7 **Successful** Bundyweld applications of today were once nothing more than undeveloped ideas. Bundy engineers have often helped in their development, for they know how and where tubing can be used to advantage. A Bundy engineer can probably help you with your idea. Call or write *Bundy Tubing Company, Detroit 14, Michigan.*

BUNDY TUBING

*REG. U.S. PAT. OFF.

ENGINEERED TO ® YOUR EXPECTATIONS

WHY BUNDYWELD IS BETTER TUBING

1 Bundyweld Tubing, made by a patented process, is entirely different from any other tubing. It starts as a single strip of basic metal, coated with bonding metal.

2 This strip is continuously rolled twice laterally into tubular form. Walls of uniform thickness and concentricity are assured by close-tolerance, cold-rolled strip.

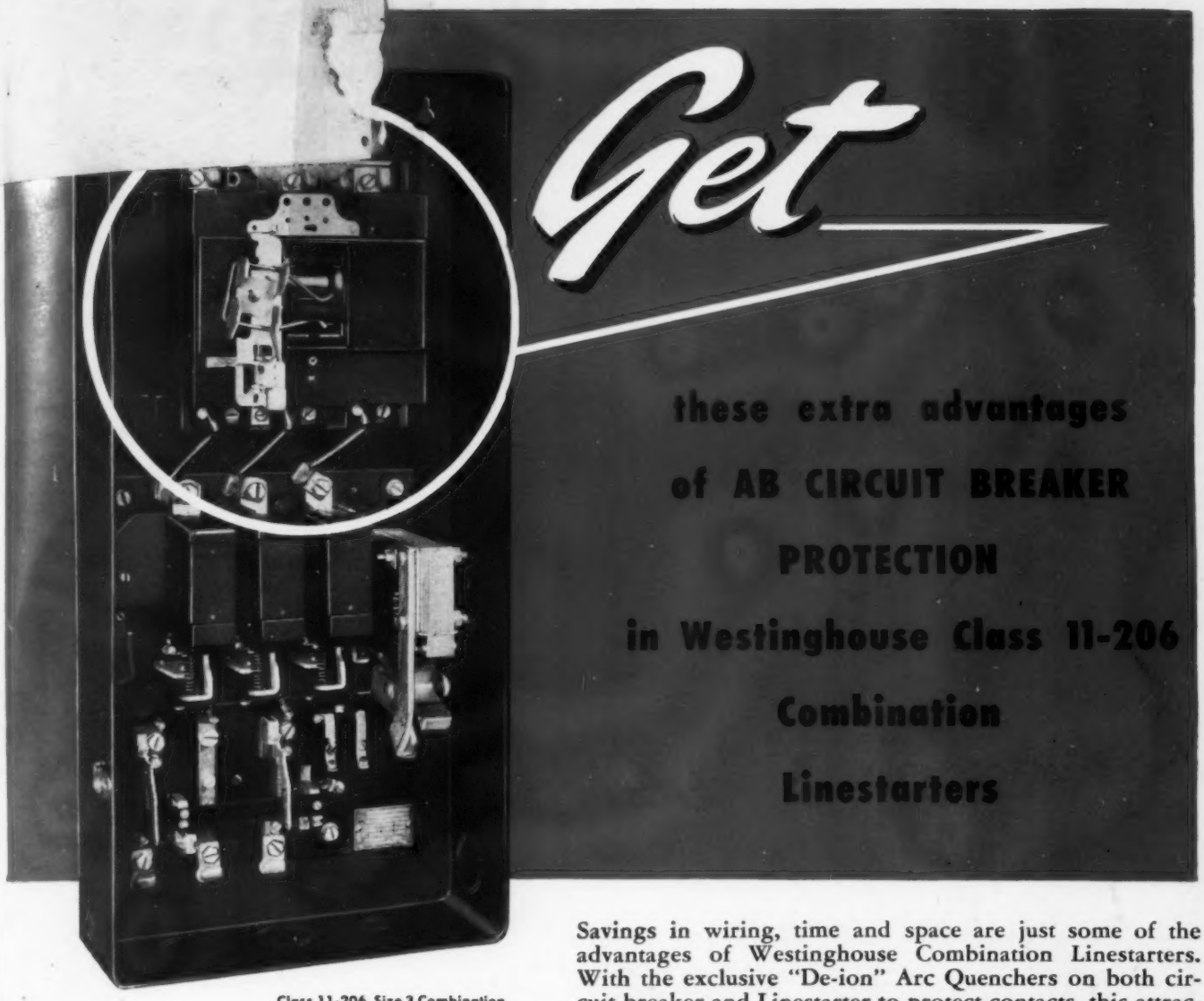
3 Next, a heating process fuses bonding metal to basic metal. Cooled, the double walls have become a strong, ductile tube, free from scale, held to close dimensions.

4 Bundyweld comes in standard sizes, up to ⅝" O.D., in steel, Monel or nickel. For special sizes or tubing of other metals, call or write Bundy Tubing.

BUNDY TUBING DISTRIBUTORS AND REPRESENTATIVES:

Standard Tube Sales Corp.	Peirson-Deakins Co.	Lapham-Hickey Co.	Rutan & Co.	Pacific Metals Co., Ltd.	Eagle Metals Co.	Alloy Metal Sales, Ltd.
76-01 Woodhaven Blvd.	823-824 Chattanooga Bank Bldg.	3333 W. 47th Place	404 Architects Bldg.	3100 19th St.	3628 E. Marginal Way	861 Bay St.
Brooklyn 27, N.Y.	Chattanooga 2, Tenn.	Chicago 32, Ill.	Philadelphia 3, Pa.	San Francisco 10, Calif.	Seattle 4, Wash.	Toronto 5, Canada

Bundyweld nickel and Monel tubing is sold by International Nickel Company distributors in all principal cities.



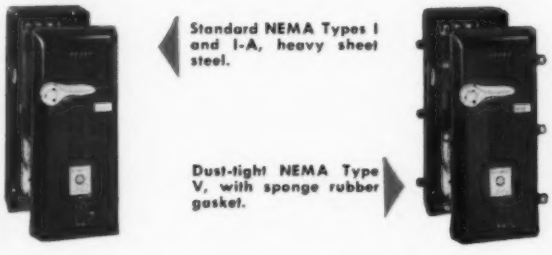
Get

these extra advantages of AB CIRCUIT BREAKER PROTECTION in Westinghouse Class 11-206 Combination Linestarters

Class 11-206, Size 3 Combination Linestarter, Type 1 Enclosure.

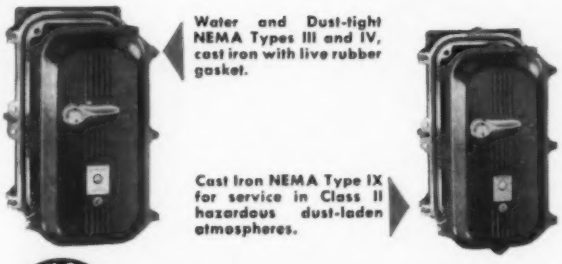
Savings in wiring, time and space are just some of the advantages of Westinghouse Combination Linestarters. With the exclusive "De-ion" Arc Quenchers on both circuit breaker and Linestarter to protect contacts, this attractive, easily-installed unit gives you a four-in-one motor control combination.

Enclosures Available for Every Application



Standard NEMA Types 1 and 1-A, heavy sheet steel.

Dust-tight NEMA Type V, with sponge rubber gasket.



Water and Dust-tight NEMA Types III and IV, cast iron with live rubber gasket.

Cast iron NEMA Type IX for service in Class II hazardous dust-laden atmospheres.

HERE'S WHAT THE AB CIRCUIT BREAKER DOES:

1. ***Manual disconnect switch.*** A mechanical interlock prevents opening door when breaker is "on". Locking arrangement permits locking breaker "off" and cabinet closed with a single padlock—or up to three padlocks.

2. ***Nofuze circuit protection.*** Factory-sealed, tamperproof circuit protection trips instantly on short circuits, but a flip of the handle by the operator puts machine back in service.

THE LINESTARTER UNIT PROVIDES:

3. ***Magnetic across-the-line starting.*** Permits motor starting by pushbutton, float or pressure switch, with either low-voltage protection or low-voltage release.

4. ***Motor protection.*** Bi-metal thermal overload relay protects motor against sustained overloads, yet permits harmless momentary peak loads.

Call your Westinghouse office or distributor or write for D.B. 11-206. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-60648

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1-200 HP · NON-REVERSING AND REVERSING · 110-600 VOLTS

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Jenkins Bros

A Fair Offer that has been in effect since 1869

Your Warranty of Extra Value . . . since 1869

FOR the better part of a century, this famous warranty has been a dependable assurance of topmost quality in every Jenkins Valve purchased.

By building *extra value* into *every* valve, Jenkins Bros. makes certain that *any* Jenkins Valve will stand up in exceptionally severe service as well as under normal conditions. Thousands of records of Jenkins Valves in service far beyond the average life expectancy of valves, under hard and constant use, prove their extraordinary endurance.

In addition to this "extra" in valve quality, Jenkins valve specialists offer you unequalled assistance in valve selection, and in planning the proper installation and maintenance so essential to valve economy.

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